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PEABODY JOURNAL OF EDUCATION

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THE RESPONSIBILITY FOR THE PUBLIC SCHOOLS[1]

BRUCE R. PAYNE
President, George Peabody College for Teachers

In saying good-by, may I suggest to you that the sovereign people who have founded and sustained the public schools, to which you go today, have definitely and finally committed the education of their children to you, and not to another.

In recent times, certain designing citizens, particularly in our own section, planning to promulgate their own pet policies, have loudly advanced the theory that inasmuch as the state owns the public elementary and high school, it can legally forbid or require the teaching of such subjects in the curriculum as its whims may dictate.

I wish you to challenge this dogma on behalf of the public, whose sovereignty is endangered by the fallacy therein.

Such claim is made chiefly by those who exalt the legislative branch over other divisions of the government, whereas the three departments—legislative, judicial, and executive—are required to constitute what we call the "state."

In the next place, the people who created these three governmental branches by electing representatives thereto are themselves *the state.*

In the third place, the public, as the sole owner, has forever settled

[1]This very strong statement on behalf of the immediate control of the public schools only by trained, professional educators constituted, under the caption, "Have Salt in Yourselves," President Payne's farewell message to the graduating class of August, 1926. It was given at the Commencement Exercises, August 25, 1926, in the Auditorium of the Social-Religious Building, George Peabody College for Teachers.

in its own mind that the public schools shall be intrusted only to the school boards, superintendents of schools, and teachers. In order to give necessary unification to school practice, the public permits state, county, and city legislative bodies to enact a minimum of permissive legislation, but it trusts none of these to manage its schools. That task is assigned only to your group of public officials.

Who, then, owns the public schools to which you are consecrating your lives today? *The public.*

The public's ownership is vested in boards of education, usually local boards. These own the school grounds, the buildings, and the equipment. They employ the teachers and the superintendent. Through the latter they administer the schools in every detail.

Therefore, neither the ownership nor the operation of the public schools to which you go is vested in the legislature, but in other public representatives.

The public requires the legislature to participate by a subsidy in the promotion of public education. The constitution of the state usually urges the creation of such a subsidizing fund. But the right to control does not accompany this permission to coöperate.

The public, through legislative bodies, having thus delegated this management to the school officials, cannot at the same time retain it in itself. It may return it to itself or transfer it to another; but so long as such power is delegated to you and your associates among the various school boards, it is not the privilege or the right of any other body to dictate what shall be taught and what shall not be taught to the children.

This is manifestly as it should be; for the education of 100,000,000 citizens has become a task so vast and complicated that special training, seasoned experience, and expert knowledge are required. The people, as owners, have, therefore, made it impossible for the self-seeking and the unskilled to manipulate these institutions of the children, just as they have forbidden the courts to be conducted by laymen or perverted by the whims of designing men.

Certainly the school will constantly seek the aid of legislative and of religious bodies; but if either the legislature or the church may override the constituted educational agencies to which the people have delegated the management of their schools in one instance, they may assume to do so in other instances, until public education will fall into the hands of political schemers and fanatical propagandists, who will utilize the machinery of education in carrying forward their own selfish purposes. God deliver the 23,000,000 children enrolled in the public schools of America from the coming of such a day!

Neither you nor any other school official may, therefore, shift your

responsibility for the development of sound character, correct ideals, and orderly intelligence in the minds of prospective citizens. The judicial department of the government does not want it; the executive department cannot assume it; the legislative department shall not have it.

It is your obligation to assume definite and positive leadership of public opinion with regard to your undertaking, for nothing is clearer than the earnestness of the founders of our government to provide educational opportunities for *all men* as a basis for the wise exercise of self-government which was intrusted to *all men*.

Patiently and persistently, therefore, you shall inform the parents of the danger of the invasion of the liberties of their children by those who plan to substitute their own prejudices for the safe and sane education which the trained and successful experience of generations of teachers has approved.

The price of intellectual freedom and of equality of educational opportunity is eternal vigilance.

As the Master set a little child in the midst of his disciples and said, "Of such is the kingdom of heaven," so I beg you to place the children in the midst of all the people and declare that of such and for such is the kingdom of education. Then you will discover the real owners and operators of the schools of the civilizations of the world; for the great day of the fulfillment of the prophecy of the ancient servant of God has arrived, when "a little child shall lead them, and no one shall hurt or destroy in all my holy mountain: for the earth shall be full of the knowledge of the Lord, as the waters cover the sea."

THE ATHLETIC ASSOCIATION OF NORTH CAROLINA HIGH-SCHOOL GIRLS

MARY MORROW
Greensboro High School, Greensboro, N. C.

The history of education is a story of costly experimentation, of victories gained through losses, and nowhere is this more apparent than in the field of physical education for women. The demand of the girl ten or fifteen years ago for participation in sports, which she had enjoyed only vicariously up to that time; the lack of trained women capable of meeting the challenge wisely; the bungling attempts of some of our high-school principals, who, with zeal unguided by wisdom, flung girls into the arena of combative sports, with little insight into their physical and spiritual needs—these things are only too familiar to all of us who have watched the high-school field for the last two decades.

For years basket ball was the only sport open to girls. The reasons for the popularity of this much-abused sport are not hard to discover. Few schools had trained physical directors for girls, but it was usually easy to find in the faculty or in the town a man who was not only willing, but highly delighted, to coach a girls' basket-ball team. It was also easy to interest the men of a town in a game so spectacular; hence, the necessary funds were forthcoming. Girls were sent on long trips to compete with far-away opponents. The coach was a man, the referee a man, and the chaperon a woman who knew nothing of the game. The dressing rooms were usually inadequate, and the conduct of the spectators was often unsportsmanlike. Frequently girls entered the game who were not physically fit for the bodily and mental exertion.

Conditions such as these resulted in a division of opinion. There were those who believed in athletics for girls, and there were those who did not. From many colleges, whose physical education experts viewed the wrecks, came condemnation of the high-school practices. Their advice, which was usually, "Thou shalt not," fell on deaf ears; for, though they saw the evils, they offered nothing in place of the things they condemned.

The young teacher who went from the college to the high school imbued with the idea of putting on a real educational program for girls found herself overwhelmed by opposition—from the townspeo-

ple, from the principal, and from the girls themselves. Two courses were open to her—either to submit to things as they were or to lose out altogether in her work.

In many sections of the country there has not yet been a great advance beyond the stage here described. Girls are there still playing violently competitive games; are still being coached by men; are still playing basket ball by boys' rules. In many schools no awards or recognition are given except to the girl who "makes the varsity squad." There is still no premium on a balanced athletic program.

Despite these conditions, the outlook may be viewed with hopefulness by those who are watching the signs of the times. In many sections efforts are being made to give to our high-school girls a sane, wholesome, and joyous program of sports.

One of these movements, which shaped itself in North Carolina several years ago, has met with some degree of success, and is herein recounted in the hope that it may provoke stimulus and discussion elsewhere. The "Athletic Association of North Carolina High-School Girls," conceived in the minds of a group of teachers and principals who saw the need and sensed the opportunity, came to birth in Greensboro in the fall of 1922. The state Physical Education Association at the next meeting heartily approved the plans, and the state High-School Association adopted the program the following spring.

Since that time the association has grown rapidly in usefulness, in membership, and in prestige. Through the organization it has been possible for the leaders to study, to guide, and perhaps to control the athletic policy of most of the North Carolina high schools.

The "point system," which forms the basis of the program, was developed with the idea of encouraging mass athletics; of giving credit for any and all forms of wholesome sport; of minimizing the competitive element and emphasizing sportsmanship, fair play, and social values.

POINT SYSTEM

The Activities Which Earn Points

GROUP 1. GAMES AND FIELD SPORTS

1. Regular and satisfactory work on any squad or team (season) ----------major 20, minor 10
   (A girl must attend at least 60 per cent of all practice work to earn these points.)
2. Participation in any official game---------- 5, maximum 50
3. Participation in any Field-Day event---------- 5, maximum 20
   (No person may enter more than four contests.)

4. First place in Field Day ..... 15 additional
   First place in any one contest ..... 10 additional
   Second place in Field Day ..... 12 additional
   Second place in any one contest ..... 8 additional
   Third place in Field Day ..... 10 additional
   Third place in any one contest ..... 5 additional
5. Hiking (for each mile; no score for less than a 3-mile hike) ... 1

(No season score for less than 15 miles. Hiking must be done under the supervision of some appointed person.)

GROUP 2. WATER SPORTS

1. Swimming Strokes	POINTS
Swimming 50 yards (any stroke)	15
Side stroke (length of pool)	5
Back stroke (length of pool)	3
Breast stroke (length of pool)	3
Trudgeon stroke (length of pool)	3
Single over-arm	3
Double over-arm	3
2. Dives (judged by form)	
Front	5
Side	3
Back	3
Swan	3
Jackknife	3
3. Stunts	
Floating one minute	1
Treading water one minute	2
Undressing in deep water (swimming 50 yards)	5
Surface dive for sandbag	5
Shaeffer method of resuscitation	5
4. Distance	
Long distance (300 yards)	5

GROUP 3. CITIZENSHIP

1. Citizenship in school, as determined by Council ..... 10 to 25
2. Office in Athletic Association ..... 5 to 20
3. Girls' Leader Corps (season) 20

(Comprised of girls who take special work in order to act as teachers' assistants.)

4. A passing grade is required on three-fourths of all school subjects for the three months previous to the awarding of an athletic letter.

GROUP 4. HORSEBACK RIDING

For each 2 miles 1

(No score for less than a 5-mile ride; no season score for less than 25 miles.)

GROUP 5. TRAINING

Observe training regulations for one term (three months)..... 20

TRAINING REGULATIONS

1. Eight consecutive hours of sleep each night, beginning not later than 10:30 (11:30 is allowed one night each week-end).
2. Well-balanced diet; no coffee or tea.
3. No eating between meals, except fresh fruit or milk.
4. Good "Health-Card" record.
5. The faculty adviser in charge of a group in training may excuse five breaks in training a season.

LIMITS OF PARTICIPATION IN SPORTS

The major sports are tennis, basket ball, baseball, hockey, and soccer football; the minor sports are hiking, folk dancing, volley ball, swimming, and golf. No girl may participate in more than one major sport a season, but may also pursue some of the minor sports in that season.

HONORS

A. The Honors Awarded, and Their Significance

1. For 200 points the local school letter will be awarded—for instance, "G" for Greensboro.

   These points shall be won as follows:

   Group 3. Citizenship ..... 10 minimum
   Elective, from any group ..... 190 maximum

2. For 300 points, an additional 100 points above the requirement for the local letter, a star will be added to the local school letter.
3. For 400 points the standard state monogram will be awarded.

   These points shall be won as follows:

   Group 2. Swimming ..... 15 minimum
   Group 3. Citizenship ..... 15 minimum
   Group 4. Training ..... 20 minimum
   Elective 350

4. For each additional 100 points above 400 a star will be added to the state monogram.

B. Restrictions Upon the Winning of Points

1. A minimum of 75 per cent of all points shall be won within the school with written records; camp and summer work may be credited to the extent of only 25 per cent given for any honor.
2. No points may be won through participation in any *required* school activity.
3. Points are transferable between schools that are members of the association.

HONORS AND AWARDS

1. Honors shall be awarded by the Athletic Council and approved by the Scholarship Committee of each school in the association.
2. Citizenship shall be decided by the Athletic Council.
3. All state monograms must be approved by the State Central Committee, where the record is kept.
4. *Certificate.* An attractive certificate will be presented, signed by the State President and other officials, to all girls winning the state monogram. A record will be kept of all girls awarded state honors.

The really distinctive feature of the association lies in the system of awards. The first honor, won usually in the sophomore year by the most athletic of our girls, is the local school letter. This insignia is similar to, but not identical with, the letters won by the boy athletes in the school. The highest award, which is difficult to win and constitutes a signal honor, is the state letter. These symbols, while insignificant in money value, have been found to be very stimulating to the average girl.

The influence of the group of state-letter girls going each year into colleges cannot be overestimated. Representing the highest type of physical womanhood and trained in leadership, they form a nucleus around which the college Physical Education instructors can build.

HOW THE ASSOCIATION IS ORGANIZED AND CONDUCTED

The organization of the association is simple. The State Constitution provides for a president, a vice president, a secretary-treasurer, and a chairman for each of the ten districts into which the state is divided. At least once a year a state conference is held, and district conferences more frequently, to carry forward the organization of the work. The undertakings of the association are discussed also in the annual meeting of the high-school department of the State Teachers' Assembly, as well as in the State Physical Education Conference.

The government of the association is republican in form, each chairman representing her district and bringing to the central council the problems and the suggestions of her section.

The local constitution, which embodies the state-wide "point system" and plan of giving awards, is administered in each school by an athletic council consisting of faculty and student "heads" of sports. Before receiving a "letter," each girl must present her "points" to this group, who pass upon the candidate as to sportsmanship, character, and citizenship in the school.

Miss Mary Channing Coleman, head of the department of Physical Education in the North Carolina College for Women, has given freely of her advice and her time on behalf of the association, and includes instruction in the administration of the constitution in regular college courses, offered in summer terms as well as in the regular college year.

The association is still, we consider, in a formative stage, but it has fully justified its place in the state educational program. Its organization is flexible, permitting contributions from everyone who has valuable ideas on the subject, while it deters the unbalanced enthusiast from carrying out in his school an unwise program. Its point system puts the girl in the small high school upon an equal footing with the city girl. The observance of the simple training regulations has proved beneficial to many girls from a standpoint both of physical development and of discipline. Stress is placed not only upon physical prowess, but also upon character and citizenship as requisites for honors. The association provides for trained referees and for better preparation of coaches, and insists upon a medical examination as a requisite for eligibility for any strenuous sport. The state-letter girls form a group of leaders in college, and the organization provides an avenue through which the college Physical Education experts can help us solve our problems.

The rather numerous inquiries and suggestions which have come to the officers already from widely separated sections of the United States are indicative of a widespread recognition of the problems involved in this phase of the development of high-school girls and of a desire for a coöperative solution. The Athletic Association of North Carolina High-School Girls believes that much can be accomplished through a broad organization of physical work for girls, and will gladly coöperate with other sections in a forward-looking, nation-wide policy.

FRESHMAN FAILURES IN SOUTHERN COLLEGES

JOSEPH ROEMER
Professor of Secondary Education and High-School Visitor, University of Florida

For the last eight years the Association of Colleges and Secondary Schools of the Southern States has had a Deans' Report compiled for its use. This report follows up the graduates of secondary schools who go to college. It presents data regarding the quality of work done by graduates of each secondary school during their first semester or quarter in college. The data are subsequently used in standardizing the secondary schools accredited by the association.

The scope of the Report has been widened each year. There were 1,330 freshmen included in 1919, and 13,889 in 1925. The 1926 Report, now in preparation, concerns a total of 14,785 students, coming from 754 secondary schools and attending 392 higher institutions. The influence of the Report has also grown each year; secondary-school men are now quite eager about the showing their graduates make in the freshman year in college.

For several years the secondary-school men of the association have been suggesting that a careful study be made of the occurrence of failures in the higher institutions. Many of them have insisted that the reports returned to them depended largely upon the particular higher institutions their graduates happened to attend. Some have gone so far as to remark that if they had it in their power to select the higher institutions their graduates attended they could practically eliminate the occurrence of failures ascribed to their schools. They have contended that, in their judgment, there is practically no uniformity of grading among the higher institutions, and that, consequently, a criticism of a secondary school upon its failures, thus measured, is in many cases unfair.

Acting upon this suggestion, it was decided, in connection with the 1925 Deans' Report, to make a study of the failures occurring during the first semester in each of the higher institutions of the association. Extracts from the Report, somewhat rearranged, are given in the present article. Any one interested in the full Report will find it in the *Proceedings of the Association of Colleges and Secondary Schools of the Southern States* for the year 1925.

In this study of failures occurring among freshmen in higher institutions an effort was made to ascertain:

1. Whether there is any uniformity among institutions regarding the proportion of freshmen who fail in one or more courses.
2. Whether there is any uniformity among institutions as to the proportion of freshmen that fail in the various courses, (a) in the same institutions or (b) in different institutions.
3. Whether failures in one subject are greater than failures in other subjects in the same higher institution.
4. Whether there is any uniformity in the proportion of failures occurring in the various types of higher institutions—e. g., colleges for men, colleges for women, teachers colleges, etc.

In order to present the answers derived from these and other similar questions, two sets of tables are here presented. One set, Tables I to V, inclusive, shows the percentage of all freshmen who failed in one or more courses in the higher institutions; and the other set, Tables VI to X, inclusive, shows the percentage of failures in the various subjects offered in these same higher institutions.

In order to study failures by types of higher institutions, five groups of schools were made. These groups were: Twelve private, coeducational, higher institutions; twelve state universities; twelve colleges for women; twelve colleges for men; and twelve teacher-training institutions. All the academic higher institutions were members of the association except two of the colleges for men. Only one of the teacher-training institutions was a member of the association.

With this explanation, Tables I to V, showing the percentages of freshmen failing in one or more subjects in certain types of higher institutions, are here given:

FAILURES IN VARIOUS COLLEGES AND TYPES OF COLLEGE

TABLE I

A COMPARISON OF THE PERCENTAGES OF FRESHMAN STUDENTS FAILING IN ONE OR MORE COURSES IN TWELVE PRIVATE COEDUCATIONAL INSTITUTIONS OF HIGHER LEARNING IN THE SOUTHERN ASSOCIATION. FALL SEMESTER, 1924-25

INSTITUTION	NUMBER STUDENTS ENROLLED	NUMBER STUDENTS FAILED	PER CENT STUDENTS FAILED	PER CENT SEMESTER HOURS FAILED
College of Charleston	35	24	68.5	35.6
Mercer University	86	48	55.8	23.4
Washington and Lee University	109	57	52.3	32.5
Centre College	25	13	52.	13.6
Tulane University	262	129	49.2	16.3
Duke University	132	53	40.1	14.7
Vanderbilt University	147	57	38.8	13.9
Rice Institute	260	99	38.1	13.7
University of the South	34	12	35.3	11.1
Davidson College	117	37	31.6	10.2
Emory University	171	49	28.8	11.8
Transylvania University	20	4	20.	1.9
Total	1,398	582	41.6	15.7

TABLE II

A COMPARISON OF THE PERCENTAGES OF FRESHMAN STUDENTS FAILING IN ONE OR MORE COURSES IN THE TWELVE SOUTHERN STATE UNIVERSITIES OF THE SOUTHERN ASSOCIATION. FALL SEMESTER, 1924-25

INSTITUTION	NUMBER STUDENTS ENROLLED	NUMBER STUDENTS FAILED	PER CENT STUDENTS FAILED	PER CENT SEMESTER HOURS FAILED
University of Florida	247	175	70.8	25.4
University of Virginia	125	80	64.	32.3
University of Texas	566	330	58.3	25.1
University of Tennessee	203	112	55.	20.
University of Louisiana	131	70	53.4	17.9
University of Mississippi	57	28	50.	20.9
University of West Virginia	238	107	45.	18.
University of Alabama	174	78	40.2	15.5
University of North Carolina	277	111	40.	20.5
University of Kentucky	310	109	35.1	10.5
University of Georgia	194	65	33.5	5.7
University of South Carolina	88	23	26.1	9.3
Total	2,610	1,288	49.3	19.

TABLE III

A COMPARISON OF THE PERCENTAGES OF FRESHMAN STUDENTS FAILING IN ONE OR MORE COURSES IN TWELVE SOUTHERN INSTITUTIONS OF HIGHER LEARNING FOR WOMEN. FALL SEMESTER, 1924-25

INSTITUTION	NUMBER STUDENTS ENROLLED	NUMBER STUDENTS FAILED	PER CENT STUDENTS FAILED	PER CENT SEMESTER HOURS FAILED
Meredith College	39	26	66.6	28.6
Shorter College	44	21	50.	22.1
Agnes Scott College	108	48	44.4	16.1
Coker College	26	11	42.3	20.3
North Carolina College for Women	203	86	42.3	17.9
Converse College	71	30	42.2	12.3
Mississippi State College for Women	87	34	40.	14.3
Randolph-Macon College (Women)	114	45	40.	10.4
College of Industrial Arts (Texas)	228	86	37.7	10.3
Alabama State College for Women	85	27	31.7	7.1
Winthrop College	168	52	30.9	10.4
Florida State College for Women	328	94	27.1	9.4
Total	1,501	560	37.3	12.4

TABLE IV

A COMPARISON OF THE PERCENTAGES OF FRESHMAN STUDENTS FAILING IN ONE OR MORE COURSES IN TWELVE SOUTHERN INSTITUTIONS OF HIGHER LEARNING FOR MEN. FALL SEMESTER, 1924-25

INSTITUTION	NUMBER STUDENTS ENROLLED	NUMBER STUDENTS FAILED	PER CENT STUDENTS FAILED	PER CENT SEMESTER HOURS FAILED
Texas A. and M.	333	234	70.2	25.4
Randolph-Macon College (Men)	23	14	60.8	38.
The Citadel	33	20	60.6	21.7
Georgia School of Technology	387	226	58.4	24.1
Furman University	40	22	55.	21.5
Alabama Polytechnic Institute	165	81	50.	13.7
Wofford College	29	14	48.3	11.9
Mississippi A. and M.	61	28	45.9	16.
North Carolina State College of Agriculture	141	58	41.1	13.4
Rice Institute[1]	260	99	38.1	13.7
Virginia Polytechnic Institute	119	39	32.8	10.9
Clemson College	79	20	25.3	6.1
Total	1,670	855	51.2	18.6

[1]This school is partially coeducational.

TABLE V

A COMPARISON OF THE PERCENTAGES OF FRESHMAN STUDENTS FAILING IN ONE OR MORE COURSES IN TWELVE SOUTHERN TEACHER-TRAINING INSTITUTIONS. FALL SEMESTER, 1924-25

INSTITUTION	NUMBER STUDENTS ENROLLED	NUMBER STUDENTS FAILED	PER CENT STUDENTS FAILED	PER CENT SEMESTER HOURS FAILED
West Tennessee State Teachers College (Memphis)	28	13	46.4	20.4
Fairmont State Normal School (West Virginia)	113	39	34.5	10.8
Middle Tennessee State Normal School (Murfreesboro)	33	9	27.2	7.
West Kentucky State Teachers College (Bowling Green)	24	6	25.	9.3
Alabama State Normal School (Florence)	35	7	20.	3.2
Mississippi State Normal School (Hattiesburg)	42	7	16.7	2.2
Sam Houston State Teachers College (Texas)	18	2	11.1	4.4
Louisiana State Normal School	83	9	10.8	2.4
Farmville State Normal School (Virginia)	85	9	10.6	2.7
East Carolina State Teachers College (Greenville, N. C.)	66	7	10.6	2.6
Georgia State College (Women) (Milledgeville)	273	28	10.2	2.7
West Liberty State Normal School (West Virginia)	33	3	9.1	.4
Total	833	139	16.7	4.9

When the percentages of students failing in one or more subjects in the various types of higher institutions are compared, there is found a wide range of difference. Among private institutions the percentage ranges from 20. at Transylvania University to 68.5 at the College of Charleston; among state universities, from 26.1 at the University of South Carolina to 70.8 at the University of Florida; among colleges for women, from 27.1 at the Florida State College for Women to 66.6 at Meredith College; among colleges for men, from 25.3 at Clemson College to 70.2 at the Texas Agricultural and Mechanical College; and among teacher-training institutions, from 9.1 at West Liberty (W. Va.) State Normal School to 46.4 at the West Tennessee State Teachers College.

If for the various types of higher institution the averages only are considered, the range is from 16.7 per cent for the teacher-training institutions to 51.2 per cent for the group of colleges for men. Expressed in another way, this means that over three times as many freshman students fail in one or more subjects in this group of colleges for men as in this group of teacher-training institutions. The averages, by types of institutions, regarding the proportion of the total number of freshman students failed, in one or more courses, during the first semester or quarter, 1924-25, are:

Colleges for Men	51.2%
State Universities	49.3%
Private Coeducational Colleges	41.6%
Colleges for Women	37.3%
Teacher-Training Colleges	16.7%

FAILURES IN VARIOUS COLLEGE SUBJECTS

We turn now to the school subjects. In order to make a comparison of the proportion of failures in the various college subjects, in these same higher institutions, and also of the averages in each subject in the various institutions and types of institution, Tables VI to X are presented.

It is clearly evident from the data appearing in Tables VI-X that there is a wide range in the percentage of failures occurring in the various subjects, among the similar institutions, and among the several types of higher institutions. The range among private institutions is from 1.9 per cent of the total number of freshman credit hours failed, at Transylvania University, to 35.6 per cent at the College of Charleston; among state universities, from 8.8 per cent of all freshman hours, at the University of Georgia, to 32.3 per cent at the University of Virginia; among colleges for women, from 7.1 per cent at the Alabama State College for Women to 28.6 per cent at Meredith College;

TABLE VI

A COMPARISON OF THE PERCENTAGES OF FRESHMAN FAILURES IN CERTAIN SUBJECTS IN TWELVE PRIVATE COEDUCATIONAL HIGHER INSTITUTIONS IN THE SOUTHERN ASSOCIATION. FALL SEMESTER, 1924-25

INSTITUTION	PER CENT OF FRESHMAN ENROLLMENT FAILED IN VARIOUS SUBJECTS								TOTAL PER CENT OF FRESHMAN CREDIT HOURS FAILED
	ENGLISH	FRENCH	HISTORY	LATIN	MATHEMATICS	SCIENCE	SPANISH	OTHER SUBJECTS	
College of Charleston	45.1	48.	43.8	33.3	17.2	29.8	50.	20.	35.6
Washington and Lee University	4.5	60.7	28.6	25.	32.8	25.2	36.8	2.3	32.5
Mercer University	22.6	14.3	11.1	0.	22.	43.2	16.9	21.2	23.4
Tulane University	8.	29.	10.7	8.2	37.3	16.9	9.8	9.6	16.3
Duke University	18.3	21.9	11.7	0.	13.3	17.1	15.1	9.3	14.7
Vanderbilt University	12.1	15.	18.4	12.	15.8	12.9	12.6	14.5	13.9
Rice Institute	13.6	8.2	4.6	0.	17.9	15.4	11.1	4.7	13.7
Emory University	7.	16.1	15.4	0.	25.	8.5	0.	9.7	11.8
University of the South	9.	17.4	0.	0.	17.	5.1	26.5	3.2	11.1
Centre College	8.3	29.4	0.	0.	8.7	0.	33.3	20.	10.5
Davidson College	1.7	16.	0.	4.8	18.6	13.4	7.5	9.	10.2
Transylvania University	0.	0.	0.	0.	0.	0.	15.	5.6	1.9
Per cent of total enrollment failed	14.2	20.5	15.3	7.3	20.6	15.4	14.6	10.8	15.7

TABLE VII

A COMPARISON OF THE PERCENTAGES OF FRESHMAN FAILURES IN CERTAIN SUBJECTS IN TWELVE STATE UNIVERSITIES IN THE SOUTHERN ASSOCIATION. FALL SEMESTER, 1924-25

INSTITUTION	PER CENT OF FRESHMAN ENROLLMENT FAILED IN VARIOUS SUBJECTS								TOTAL PER CENT OF FRESHMAN CREDIT HOURS FAILED
	ENGLISH	FRENCH	HISTORY	LATIN	MATHEMATICS	SCIENCE	SPANISH	OTHER SUBJECTS	
University of Virginia	24.2	40.6	48.3	43.7	42.8	28.1	21.5	37.7	32.3
University of Florida	22.7	24.1	25.5	42.9	31.3	25.8	58.4	19.5	25.4
University of Texas	27.	27.1	23.3	30.7	30.8	27.9	25.4	14.1	25.1
University of Mississippi	32.1	8.3	16.2	8.1	28.2	17.	25.	10.6	20.9
University of North Carolina	8.	21.1	23.5	25.	22.4	17.8	23.2	31.3	20.5
University of Tennessee	25.7	20.7	15.1	0.	29.9	20.5	42.	10.8	20.
University of West Virginia	16.7	7.8	16.7	47.3	31.7	23.3	22.	8.1	18.
University of Louisiana	15.9	13.7	32.7	35.	10.9	18.3	11.5	14.7	17.9
University of Alabama	14.6	16.8	11.8	0.	26.9	14.7	23.2	9.6	15.5
University of Kentucky	8.	7.6	16.9	12.5	16.9	14.9	21.4	6.3	10.5
University of South Carolina	5.7	9.7	13.8	6.2	8.1	12.4	8.8	6.6	9.3
University of Georgia	7.5	9.7	8.2	8.3	11.1	12.5	6.9	6.6	8.8
Per cent of total enrollment failed	17.8	17.2	20.3	24.8	25.	21.3	26.3	12.4	19.3

TABLE VIII

A Comparison of the Percentages of Freshman Failures in Certain Subjects in Twelve Southern Institutions of Higher Learning for Women. Fall Semester, 1924-25

Institution	Per Cent of Freshman Enrollment Failed in Various Subjects								Total Per Cent of Freshman Credit Hours Failed
	English	French	History	Latin	Mathematics	Science	Spanish	Other Subjects	
Meredith College	30.7	11.7	30.4	15.4	54.5	33.	0.	24.4	28.6
Shorter College	12.5	13.	16.6	0.	55.5	19.2	33.3	----	22.1
Coker College	11.5	46.1	7.7	11.1	27.8	16.1	33.3	22.4	20.3
North Carolina State College for Women	15.3	18.9	20.9	33.3	16.1	27.3	14.5	10.4	17.9
Agnes Scott	7.5	10.2	18.6	21.1	23.8	22.2	16.6	0.	16.1
Mississippi State College (Women)	8.6	29.9	7.6	13.3	16.6	19.7	22.7	10.9	14.3
Converse College	8.6	12.9	0.	21.1	15.5	14.2	42.8	12.	12.3
Randolph-Macon College	6.4	9.2	7.8	16.7	14.2	9.	0.	1.9	10.4
Winthrop College	13.7	9.9	----	7.9	11.9	9.1	8.	8.7	10.4
College of Industrial Arts (Texas)	13.1	12.7	4.6	0.	30.7	25.4	20.5	6.6	10.3
Florida State College for Women	9.	15.6	5.7	11.3	17.7	8.5	23.6	5.4	9.4
Alabama College (Montevallo)	9.5	0.	5.5	----	20.	11.8	0.	4.1	7.1
Per cent of total enrollment failed	11.4	14.1	11.3	15.8	19.9	16.8	20.8	7.3	12.4

TABLE IX

A Comparison of the Percentages of Freshman Failures in Certain Subjects in Twelve Southern Institutions of Higher Learning for Men. Fall Semester, 1924-25

Institution	Per Cent of Freshman Enrollment Failed in Various Subjects								Total Per Cent of Freshman Credit Hours Failed
	English	French	History	Latin	Mathematics	Science	Spanish	Other Subjects	
Randolph-Macon College (Men)	28.5	37.5	0.	50.	60.	45.	33.3	0.	38.
Texas A. and M.	17.	0.	33.3	----	29.2	45.2	20.	14.2	25.4
Georgia School of Technology	23.5	57.9	10.	----	28.8	31.8	33.5	12.3	24.1
The Citadel	55.1	9.3	28.1	----	25.	9.3	----	0.	21.7
Furman University	12.5	43.5	10.	10.	32.7	24.6	0.	10.	21.5
Mississippi A. and M.	8.5	----	11.3	----	19.3	15.5	0.	22.1	16.
Alabama Polytechnic Institute	15.8	30.6	4.3	----	20.	22.1	63.5	0.	13.7
Rice Institute[a]	13.5	8.2	4.5	----	17.9	15.4	11.1	4.7	13.7
North Carolina State College of Agriculture	8.1	0.	0.	----	15.8	27.1	0.	2.4	13.4
Wofford College	10.7	13.2	0.	16.6	8.	16.	0.	15.2	11.9
Virginia Polytechnic Institute	14.6	0.	0.	----	13.3	15.6	----	7.	10.9
Clemson College	7.8	0.	4.2	----	6.7	14.3	----	7.	6.1
Per cent of total enrollment failed	16.7	25.	7.3	16.6	23.4	26.2	26.1	9.5	18.6

[a]This school is partially coeducational.

TABLE X

A COMPARISON OF THE PERCENTAGES OF FRESHMAN FAILURES IN CERTAIN SUBJECTS IN TWELVE SOUTHERN TEACHER-TRAINING INSTITUTIONS. FALL SEMESTER, 1924-25

INSTITUTION	PER CENT OF FRESHMAN ENROLLMENT FAILED IN VARIOUS SUBJECTS								PER CENT OF FRESHMAN CREDIT HOURS FAILED
	ENGLISH	FRENCH	HISTORY	LATIN	MATHEMATICS	SCIENCE	SPANISH	OTHER SUBJECTS	TOTAL
West Tennessee State Teachers College	31.	15.8	30.	0.	37.5	0.	23.1	12.1	20.4
Fairmont Normal	12.4	27.8	19.8	25.	24.6	5.8	----	7.7	10.8
West Kentucky State Teachers College	18.7	0.	21.	0.	0.	----	----	4.2	9.3
Middle Tennessee State Normal School	3.7	0.	11.1	0.	0.	0.	18.7	9.4	7.
Sam Houston State Teachers College	0.	----	0.	0.	0.	7.1	0.	8.9	4.4
Georgia State College for Women (Milledgeville)	5.5	0.	----	0.	0.	1.7	0.	2.8	2.7
Alabama State Normal School (Florence)	5.8	0.	0.	----	0.	----	----	2.4	3.2
Farmville Normal School	2.9	0.	0.	0.	8.3	2.2	14.2	1.7	2.7
Mississippi State Normal School	4.7	14.3	0.	0.	0.	0.	----	1.4	2.2
Louisiana State Normal	1.2	0.	4.6	0.	4.9	1.8	0.	1.1	2.4
East Carolina Teachers College	1.6	----	2.5	----	0.	10.9	----	1.1	2.6
West Liberty State Normal School (West Virginia)	.9	----	0.	----	0.	0.	----	0.	.4
Per cent of total enrollment failed	7.1	7.	9.6	4.3	8.5	2.4	9.8	3.7	4.9

among the colleges for men, from 6.1 per cent at Clemson College to 38. per cent at Randolph-Macon College for Men; and among teacher-training institutions, from .4 per cent at the West Liberty (W. Va.) State Normal School to 20.4 per cent at the West Tennessee State Teachers College.

When, instead of general averages from whole institutions, the ranges in particular subjects are studied, the results are even more striking. If English be taken, for instance, it is seen that the percentage of failures in this subject ranges, among private colleges, from 0. per cent at Transylvania University to 45.1 per cent at the College of Charleston; among state universities, from 8. per cent at the Universities of Kentucky and North Carolina to 32.1 per cent at the University of Mississippi; among colleges for women, from 6.4 per cent at Randolph-Macon College for Women to 30.7 per cent at Meredith College; among colleges for men, from 7.8 per cent at Clemson College to 55.1 per cent at The Citadel; and among teacher-training institutions, from 0. per cent at the Sam Houston State Teachers College to 31. per cent at the West Tennessee State Teachers College.

The range regarding English in the averages of the different types of institution is here summarized:

State Universities	17.8	per cent of the credit hours are failed
Colleges for Men	16.7	per cent of the credit hours are failed
Private Coeducational Colleges	14.2	per cent of the credit hours are failed
Colleges for Women	11.4	per cent of the credit hours are failed
Teachers Colleges	7.1	per cent of the credit hours are failed

The greatest average proportion of failure in any subject and any type of institution is 26.3 per cent, in Spanish in State Universities. The least is 2.4 per cent, in Science in Teachers Colleges. The greatest percentage of failure in any subject in any single institution is 60.7, occurring in French in Washington and Lee University. In every subject there are instances of 0. per cent of failures in particular institutions. Transylvania University exhibits this in six of the subjects here studied, the Sam Houston State Teachers College (Texas) in five, and several teacher-training institutions in four. Many other interesting statements in summary of the data here appearing might be made.

CONCLUSIONS

The following conclusions may be drawn from these data:

1. That there is a wide range of difference in the proportion of failures occurring in the various Southern higher institutions.

2. That there is a wide range of difference in the proportion of freshmen failing in the various subjects in any one institution.

3. That there is a wide range of difference in the proportion of students that fail in one or more subjects in the various *types* of higher institution.

4. That failures are fewer among teacher-training institutions than among the other four groups of higher institutions.

5. That the proportion of freshman failures is greater among state universities than among the other four types of higher institution.

6. That the percentage of failures is higher among the colleges for men than among the colleges for women.

7. That, within the several types of college, the *range* of the percentages of failure is greatest among the private coeducational institutions and least among the teacher-training institutions.

8. That more than three times as many students fail in one or more subjects in state universities as in teacher-training institutions.

9. That practically one-half of the freshmen in state universities and in colleges for men fail, during their first semester, in one or more subjects.

10. That the percentage of students failing in one or more subjects ranges, among specific institutions, from 9.1 at the West Liberty (W. Va.) State Normal School to 70.8 at the University of Florida.

11. That there seems to be no scientific basis used by the higher institutions, as a rule, in marking their students.

12. That the matter of marks assigned students in higher institutions is evidently, as a rule, left entirely to the personal opinion of instructors.

13. That there is a large element of truth in the contention of secondary school men that marking is on so unscientific a basis, and is so lacking in uniformity, among the higher institutions, that the percentage of failures a secondary school has credited against it in the Deans' Report is determined very largely by the type of higher institution and the particular college which its graduates chance to select for their higher education.

When the full report, from which this article is, with slight rearrangements, an excerpt, was presented to the association at its 1925 session, the association, as a whole, seemed to realize that a chaotic condition with regard to marking college students existed among its higher institutions, and authorized an investigation of the problem. At the next session of the association the committee appointed to make this study will present a very searching report regarding the marking systems used in all the institutions of higher learning in the association.

SOME ASPECTS OF THE TRAINING AND EQUIPMENT OF DEPARTMENT HEADS OF TWO-YEAR NORMAL SCHOOLS

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The character of, and amount of, preparation and training necessary for any task depend largely upon the nature of the task. In professions like law and medicine, that fact is quite well established. Not so with teaching. Perhaps the chief reason for this is that the teaching job has not been analyzed as yet. There is by no means universal agreement regarding the aims and objectives in education; there is still less agreement as to the preparation necessary to obtain those objectives and aims.

Some progress, however, is being made in job analysis in the teaching profession. An encouraging number of teachers are now thinking in terms of specific types of teaching, rather than in general terms. Normal schools and teachers colleges are differentiating their curricula into Primary-Kindergarten, Intermediate Grades, Upper Grammar Grades, Junior High School, and the Senior High School departments. The certification regulations in not a few states are taking cognizance of these types of teaching, and of this very definite and specific training, in the licensing of teachers. There is very manifestly a forward movement in the direction of specifics in teacher training.

But is it sufficient to stop, in our analysis, with the equipment which a kindergarten teacher, or a teacher of high-school mathematics, should have? It would seem that the job is only half complete if the efforts stop there. Should not the same serious thought be given to a study of the equipment necessary for the one who *trains* the kindergarten teacher or the high-school mathematics teacher? Can that training be secured, with any degree of certainty, without knowing what constitutes the equipment of the one who trains the teacher for her specific task?

The purpose of this study is to find, if possible, some of the elements which should constitute a part of the equipment of the teachers in our teacher-training institutions. It is concerned with those teachers that are found in the organization of practically all present-day normal schools. The investigation has been limited to the Heads of

Departments, Supervisors, and Critic teachers. This particular report gives the findings with reference to the Department Heads. Subsequent reports may be made of the results with reference to Supervisors and Critic teachers.

Especial attention is called to the data relating to the professional requirements for Heads of *Academic Departments*, such as English, Science, etc. Teacher-training institutions have no excuse for existence, save to *train teachers*. It is this undertaking that distinguishes them from the academic institutions. The curriculum is not the only criterion for determining whether or not an institution is training teachers. The specific training of the faculty must enter into the analysis. This is particularly true with reference to those who teach the academic subjects. In the academic institutions subject matter is taught largely as an end in itself; in the teacher-training institutions it is primarily a means to an end. Teachers of such subjects in the teacher-training institutions should have such training as will give them that conception of their work. It is believed that the professional equipment of such a teacher will have a very direct bearing upon his point of view in this particular. Of course there are many other justifications for a certain amount of professional training on the part of all teachers connected with teacher-training institutions.

WHAT LEADERS IN TEACHER TRAINING RECOMMEND

In making this study, questionnaires were sent to the presidents of representative normal schools and state teachers colleges, to directors of training schools of such institutions, and to professors of Elementary Education and School Administration in the leading private teachers colleges.[1] Altogether, twenty replies were received.

In this study the writer had in mind a two-year normal school, preparing teachers for the elementary schools. An annual enrollment (excluding the summer quarter) of three hundred students is assumed. This was understood by those contributing to the study.

The following tables give facts as obtained from this study. Tentative conclusions may be drawn with reference to these questions:

1. The minimum degree requirement for Department Heads.

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[1]The colleges reached by the inquiry were: East Central State Teachers College, Ada, Okla.; Michigan State Normal College, Ypsilanti; Western State Normal School, Kalamazoo, Mich.; State Normal College, Dillon, Mont.; State Normal School, Plymouth, Mass. (2); State Normal School, Salem, Mass.; State Teachers College, San José, Cal.; New Mexico State Teachers College, Silver City; Northern Arizona Normal School, Flagstaff; Central State Teachers College, Edmond, Okla. (2); Western Illinois State Teachers College, Macomb; State Normal School, Indiana, Pa. (2); Louisiana State Normal School, Natchitoches; Illinois State Normal School, Normal (2); George Peabody College for Teachers, Nashville, Tenn.; Teachers College, Columbia University, New York City.

2. The professional requirements in semester hours for Department Heads of Academic Subjects.

3. Specific professional courses for Department Heads of Academic Subjects.

4. The amount of teaching experience.

5. Character of the teaching experience.

6. The maximum teaching load for a Department Head.

7. A reasonable salary for a Department Head.

TABLE I

MINIMUM DEGREE REQUIREMENTS FOR DEPARTMENT HEADS

DEGREE REQUIREMENT	NUMBER OF REPORTS
Bachelor's, or Equivalent	1
Bachelor's, except for Music and Special Lines	1
Bachelor's	8
A.M., or Equivalent	1
Master's	7
A.M. (Major in Subject Taught)	1
Doctor's (Ph.D.)	1
Total	20

According to Table I, 10 of the 20 reporting said that a bachelor's degree or its equivalent should represent the minimum requirement; 9 of the 20, that a master's degree or its equivalent; and 1 of the 20, that a Ph.D. degree should be required. It might be fair to assume that those reporting a bachelor's degree as the minimum would strongly advocate the equivalent of a master's degree.

TABLE II

AMOUNT OF PROFESSIONAL STUDY (IN SEMESTER HOURS) DEPARTMENT HEADS OF ACADEMIC STUDIES SHOULD HAVE HAD

(Academic Subjects refer to History, English, Science, etc.)

SEMESTER HOURS	NUMBER REPORTING
At least twelve	1
Fifteen	1
At least fifteen	1
Eighteen to twenty	1
Twenty (minimum)	2
Twenty-one (at least)	1
Twenty-four	1
Twenty-five	1
Thirty	1
Hardly less than a full year	1
North Central Requirements	1
Equal credit with academic	1
Total	13

It will be noted that the range is from at least 12 semester hours to equal credit with academic. However, 8 of the 13 cases fall between 18 and 30 semester hours. Perhaps the arbitrary number that would most nearly approximate a central tendency is 24 hours.

TABLE III

SPECIFIC PROFESSIONAL COURSES THAT SHOULD ENTER INTO THE PREPARATION OF DEPARTMENT HEADS OF ACADEMIC SUBJECTS

COURSES	NUMBER REPORTING
Teaching the Special Subject	8
History of Education	7
Educational Psychology	6
Philosophy of Education	5
General Methods	4
Mental and Educational Tests	4
Principles of Education	4
Administration	3
Principles of Teaching	3
Elementary Psychology	3
Practice Teaching	2
Educational Sociology	2
Psychology of School Subjects	2
Management	2
Supervision	1
Introduction to Science of Education	1
Child Psychology	1
Current Educational Problems	1
Primary Curriculum	1
Intermediate Curriculum	1
School Law	1
Professional courses of various sorts	1
No fixed requirements. Depends upon personality and intelligence of candidate	1

Data in Table III were compiled from 15 reports. Only one course, Teaching the Special Subjects, occurred in more than half of the reports. History of Education and Educational Psychology are just below the 50-per-cent line. Perhaps it would be safe to assume that all courses with a frequency of 4 or more should find some consideration in the preparation of Department Heads of Academic Subjects.

TABLE IV

YEARS OF TEACHING EXPERIENCE DEPARTMENT HEADS SHOULD HAVE HAD

NUMBER OF YEARS	NUMBER REPORTING
One to three	1
Two	1
Not less than two	1
Three	1
Minimum of four	1
Five	3
At least five	1
Not less than six	1
Five to ten	1
Eight	2
Eight to twelve	1
Ten	1
Ten to fifteen	1
No fixed number	1
Total	17

This table indicates a very wide divergence of opinion in what is regarded as the optimum amount of teaching experience which Department Heads should have. The range is from 1 year to 15 years. One report stated "no fixed number." Fifty-eight per cent of the cases fall between 3 and 8 years. Perhaps 5 years' experience would most nearly find a general acceptance.

TABLE V

Nature of Teaching Experience Department Heads Should Have Had

Nature of Experience	Number Reporting
Elementary Grades and High School	4
Elementary Schools, possibly High Schools	1
Whole Elementary Field	1
Should include Grade Schools	2
In Grades, anyway	1
Elementary Grades, public-school work, and work in Supervision	1
Several Years in Actual Classroom Work with Children	1
Class Teaching; some Supervision	1
Field of Work Closely Related to Subject Taught	1
Under Supervision	1
Total	14

There seems to be rather general agreement that the teaching experience be in the elementary schools. Approximately 80 per cent report that this experience be some form of elementary, public-school, or grade work. Some emphasis is placed upon teaching under supervision, which, of course, may be included in the public-school experience. Only one reported that the experience be in the field of work closely related to the subject taught.

TABLE VI

Maximum Teaching Load of Department Heads

Teaching Load	Number Reporting
Fifteen clock hours, or eighteen forty-five-minute periods	3
Sixteen hours	5
Sixteen and two-thirds clock hours	1
Sixteen to twenty hours	1
Eighteen hours	3
Twenty (forty-five-minute periods)	4
Twenty-five hours	1
Total	18

TABLE VII

Reasonable Salary for Department Heads

Salary	Number Reporting
$1,800 to $4,500	1
$1,800 minimum, women; $2,400 minimum, men	1
$2,000 to $3,000	2
$2,000 to $4,000	1
$2,500	1
$3,000 (minimum)	3
$3,000 to $5,000	1
$3,500 to $4,500	1
$3,500 to $5,000	2
$3,600 (nine months)	2
$4,000 to $4,500 (ten and one-half months)	1
Total	16

It will be noted that the modal teaching load is 16 hours. Reference to Table VI will show 12 of the total 18, or 66 2-3 per cent, are included in the range 15-18. The one case, 16-20, and the four cases, 20 (45-minute periods), also might possibly fall in that class. In that event, 94.4 per cent of the cases lie between 15 and 18 hours.

Of course there are many elements that enter into what should be regarded as a reasonable salary for a Department Head. It is assumed that these factors were given due consideration by those reporting the data in this table. In the light of these data, it would seem that a reasonable salary might range from $2,000 to $4,000. Perhaps $3,000 might be accepted as a representative salary. The one report which indicates different salaries for men and women might raise the question as to whether the other reports make no distinction between sexes, or whether the salary of but one sex was in mind.

SUMMARY

1. The Department Head should have at least a bachelor's degree. Fifty per cent of those reporting say there should be the minimum of a master's degree.

2. The amount of professional credit which the Department Head of Academic Subjects should have is a minimum of 18 to 30 semester hours, with perhaps 24 hours as an arbitrary number.

3. The specific professional courses for Department Heads of Academic Subjects should include Teaching the Special Subject, and perhaps History of Education and Educational Psychology. Philosophy of Education, General Methods, Mental and Educational Tests, and Principles of Education should receive favorable consideration.

4. The number of years' teaching experience prior to becoming Department Head should be between 5 and 8.

5. The teaching experience should have been in the elementary schools. Approximately 80 per cent report that the experience be some form of elementary public-school, or grade, work.

6. The maximum teaching load should be 15 to 18 recitation hours per week.

7. A reasonable salary lies somewhere between $2,000 and $4,000 per year, with $3,000 as a definite sum. Perhaps it would be fair to make a sex distinction in this matter, with the larger salary in favor of men.

MUSCLE PHYSIOLOGY

A contribution by students in the Department of Biology in the University of Chattanooga

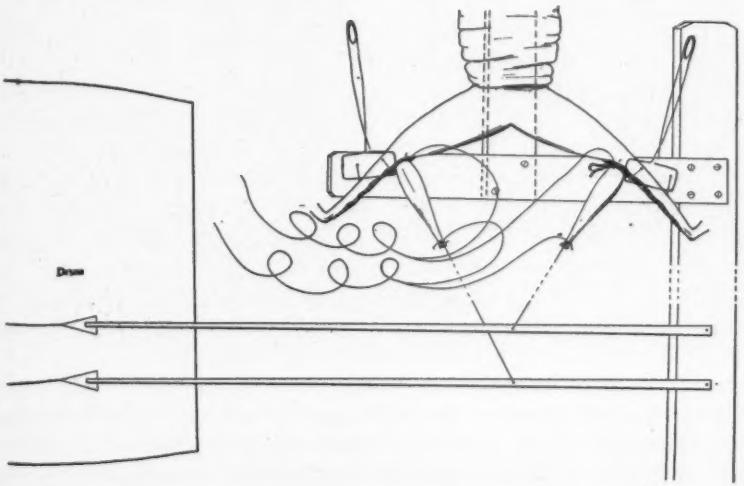
Doubtless teachers of elementary physiology everywhere would agree that it is a sound principle to subordinate details of structure to facts of operation, but it is so much easier to study structure than to study function that in many elementary courses too little attention is paid to the latter. We believe the following study of muscle physiology is so interesting and instructive that many teachers of this subject will wish to perform the experiment for their classes.

The object is to discover the relation of the circulation of the blood to muscle fatigue and recuperation. The common grass frog, *Rana pipiens*, is the most convenient animal to use, since its muscles are so tenacious of life that they will retain a nearly normal functioning capacity for hours after being separated from the other systems. First, the frog must be pithed so as to destroy the brain completely. Then the gastrocnemius muscle on each limb is dissected out in the manner shown in the accompanying figure, cutting the tendon of Achilles distad to the ankle joint. The blood supply of one of the muscles is cut off by a ligature at its proximal end. In the diagram this muscle may be seen to be attached to the upper lever. In doing this dissection, great care must be exercised to prevent the loss of blood by not cutting any of the blood vessels.

Now, the preparation is arranged as shown by the diagram, wrapping the trunk of the frog in a moist cloth to prevent annoying reflexes. Other precautions may be necessary. The muscles should be kept moist with physiological salt solution. The limbs of the frog are fastened to the horizontal beam by means of pins and test-tube clamps, and the dissected gastrocnemius muscles attached to the levers with nonelastic string, tied to them at equal distances from the fulcra. The specimen should be elevated far enough above the levers so that the attachment cords may be more nearly parallel than shown in the diagram.

The electric-light current is utilized for stimulating the muscles. It is, of course, necessary to introduce a rheostat and an induction coil into the circuit so as to prevent possible injury to the muscles. The aid of the physics department may be required at this point. Intermittent stimulation is secured by means of a metronome. It is best

to apply the stimulation, not through the nerve supplying these muscles, but direct, as shown in the figure. With the preparation thus arranged, a parallel set of records of the reactions of the muscles may be made.

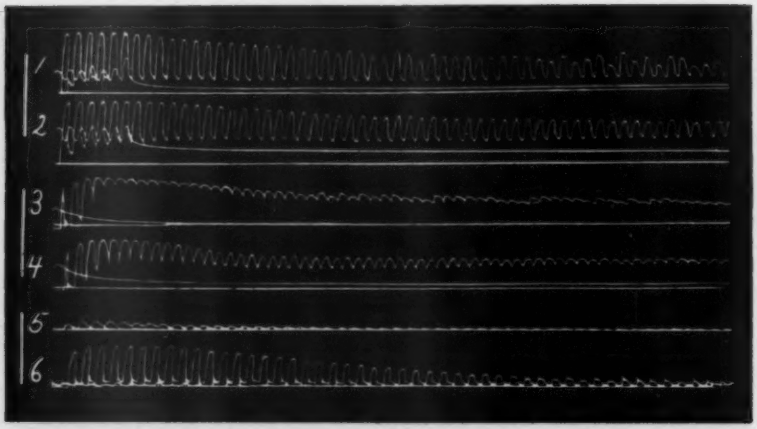


Paper smoked with camphor gum, fastened to a drum rotated at a uniform rate with clockwork, serves as a record sheet. When the current is turned on and the muscles stimulated, the levers are set in motion by the reactions of the muscles. Thus a synchronous parallel graph is obtained on the sheet, showing the relative degree of response of the two muscles.

The accompanying three sets of parallel graphs show the results of our experiment. Graphs 1, 3, and 5 are records of the muscle with the blood supply cut off, and Graphs 2, 4, and 6 are records of the one supplied with blood.

In the first parallel set, Graphs 1 and 2, which was made immediately after the frog was prepared, the reactions were similar in all respects, except that the contractions of the muscle without blood supply soon became irregular, as shown by the unevenness of the right half of Graph 1. A barely detectable unsteadiness also developed in the other muscle, Graph 2. The rate of rotation of the drum was such that these records were made in one and one-half minutes. It will be noted that the loss of vigor proceeds at about the same rate in the two muscles, the amount of contraction in each case, at the end of one and one-half minutes, being about one-third of what it was

at the beginning of the experiment. Accompanying the loss of capacity to contract is a loss of power to relax completely.



After a lapse of ten minutes, a second record, Graphs 3 and 4, was made. The first three contractions were more nearly normal than any thereafter. There appeared subsequently a distinct difference in the degree and regularity of the contractions. The bloodless muscle, Graph 3, is seen to have lost most of its vigor, as well as to have become very unsteady. The contractions are very irregular, some being several times as great as others. The same degree of regularity noted in Graph 2 is continued in Graph 4, though there was a slight diminution of vigor. Graphs 3 and 4 clearly indicate that the muscle supplied with blood recuperates more rapidly than the bloodless one. However, it was thought best to emphasize the disparity in their reactions by a long rest—namely, one and one-half hours.

This long period of waiting did not result in a high degree of restoration of vigor in the bloodless muscle, as will be noted in Graph 5. It is very interesting to note that unsteadiness in this muscle, so conspicuous in Graphs 3 and 1, has very nearly disappeared, as is shown by the extreme regularity in the first portion of the graph. Graph 6 shows that the muscle with the blood flowing through it has recuperated to such an extent that the contractions are nearly as vigorous as in the fresh muscle, though the more rapid decrease in the height of the curve (than in Graph 2) shows that fatigue now came on at a higher rate than in the fresh muscle. Only a slight irregularity was noticeable, and that in the last part of the curve. This shows clearly that a muscle supplied with blood has a very much greater capacity for recuperation than one deprived of its blood supply.

Let us now consider just what happens in muscles which have been forced to work under these conditions until quite fatigued. How may we explain the decided difference in their behavior? This can best be answered by considering what is the source of the energy released during the process. It is derived, of course, from chemical decomposition, mainly physiological oxidation—i. e., internal respiration. The available oxygen supply (O_2) present is thus used up in both muscles, but at a different rate, in the formation of carbonic acid gas (CO_2). The supply is very soon exhausted in the bloodless muscle, and ultimately it is very low in the other muscle, for it is used at a much higher rate than it can be supplied by the blood stream. Carbonic acid gas accumulates in both muscles, but most in the bloodless one, since it is continuously being removed by the blood stream of the other muscle. The fatigue phenomena in muscles are thus accompanied by, and in a large measure are caused by, the exhaustion of the oxygen supply and the accumulation of carbonic acid gas.

These are by no means the only causes of fatigue. Most important among other fatigue products is sarcolactic acid (with the same formula as the acid of sour milk, $C_3H_6O_3$). This acid accumulates in active muscles and lowers their capacity for contraction in cases where the oxygen supply is not sufficient to remove it as fast as it is formed. Normally the oxygen removes it by transforming it into carbonic acid gas and water according to the following equation: $C_3H_6O_3+3O_2 \quad 3CO_2+3H_2O$. The lymph which bathes the muscle fibers normally absorbs these by-products of muscular activity, and passes them to the blood stream, and in turn absorbs oxygen and food, especially sugar, from the blood stream and transfers it to the muscle fibers.

For further discussion of energy transformations and other interesting phenomena related to the physiology of skeletal muscle, the reader is referred to the various standard texts.

By way of summary, it might be said that this paper describes the procedure in carrying out a simple experiment in muscle fatigue with sufficient clearness, it is hoped, so that it might easily be repeated by other elementary classes in physiology. An example is also given of the results that might be expected from this experiment when done by the best students in the class.

RELIABILITY OF THE THORNDIKE-McCALL READING SCALE

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The purpose of this paper is to present test data showing the degree of reliability of Forms 1 to 8, inclusive, of the Thorndike-McCall Reading Scale. It is highly desirable that users of different forms of a test know to what extent the forms are reliable. Two forms of a reading test may give a high reliability coefficient and comparable means and measures of variability, and yet not be valid measures. With the problem of validity we are not concerned. Our problem is to determine whether the different forms give similar results.

METHOD AND SUBJECTS

Forty-two children enrolled in the eighth grade of the Peabody Demonstration School of George Peabody College for Teachers were used as subjects. These children had taken numerous tests during their school career, and might be considered test proof. The tests were administered by one of the writers at intervals of one school month. All the papers were scored and then checked for errors in scoring by at least two persons. All the scores were then reduced to reading quotients. The reading quotients were found by the usual method of dividing reading age by chronological age. All mathematical work involved in reducing the scores to reading quotients was checked for errors. The forms were administered in the following order: 4, 3, 2, 5, 6, 1, 7, 8. There was no special reason for the order in which the tests were given.

TREATMENT OF DATA

The coefficients of reliability were found by the intercorrelation of the various forms. Table I summarizes the coefficients of reliability, together with the P.E.'s. The averages, P.E. of averages, P.E. of differences between averages, and S.D.'s are given in Table II. The average coefficient of correlation for testing at different intervals will be found in Table III. The formula devised by Kelley ('23) for determining accuracy of placement gives, when applied to our data, a standard error of estimate of a true score of 7.5.

TABLE I

SHOWING RELIABILITY COEFFICIENTS AND P.E.'S FOR EIGHT FORMS OF THE THORNDIKE-MCCALL READING SCALE ADMINISTERED AT INTERVALS OF ONE SCHOOL MONTH

FORM	4	3	2	5	6	1	7	8	AVERAGE
4	------	59 .07	76 .04	60 .06	62 .06	66 .05	54 .07	61 .06	63
3	59	------	55 .07	53 .07	53 .07	51 .07	64 .06	58 .07	56
2	76	55	------	55 .07	76 .04	51 .07	72 .05	62 .06	64
5	60	53	55	------	72 .05	62 .06	69 .05	57 .07	61
6	62	53	76	72	------	50 .07	47 .08	44 .08	58
1	66	51	51	62	50	------	65 .05	59 .07	58
7	54	61	72	69	47	65	------	61 .06	62
8	61	58	62	57	44	59	61	------	57

INTERPRETATION

As would be expected, the intercorrelations vary in size. They are, however, fairly high. No correlation is less than four times its P.E. They would, therefore, be considered reliable. According to Kelley ('19), prediction based on a correlation the size of our average would be only about 20 per cent better than a guess. Current and Ruch ('26) gave Forms 1 and 2 to 154 children distributed throughout

TABLE II

SHOWING CENTRAL TENDENCIES, MEASURES OF VARIABILITY, AND MEASURES OF RELIABILITY

	FORM							
	4	3	2	5	6	1	7	8
Average	108.1	111.8	106.4	111.6	114.6	115.7	117.6	109.2
P. E. of Average	1.6	1.6	2.	1.5	1.9	1.3	1.5	1.4
P. E. of difference between averages	------	2.3	2.6	2.5	2.4	2.3	2.	2.1
S. D.	15.6	15.4	19.	14.8	18.3	12.5	14.1	13.6

This should be read: The P.E. of the difference between the averages for Forms 4 and 3 is 2.3, for 3 and 2 it is 2.6, etc.

Grades IV to VIII, inclusive. They found a reliability coefficient of 76. Prediction based on a coefficient of correlation of 76 is 35 per cent better than a guess. Gates ('21) found correlations between several forms varying from 25 to 72. His correlations, however, were based on only about twenty cases. Our S.D.'s and averages are approximately comparable from form to form. These facts indicate

TABLE III

SHOWING AVERAGE CORRELATION AT DIFFERENT INTERVALS OF TESTING

INTERVAL IN MONTHS	7	6	5	4	3	2	1
Average Correlation	61	56	63	60	55	62	60

that the forms are of about the same difficulty, and that they give scores distributed approximately within the same range. Table III shows that about the same relationship holds between scores, whether secured at an interval of one month or at a longer interval.

The average age of the pupils at the taking of the first test was 163 months. The average reading age was 176 months. We found the standard error of estimate to be 7.5, in terms of reading quotient. The P.E. of estimate would, therefore, be .6745 of that number, or 5.1. In terms of reading age for these children, this gives a P.E. of estimate of three months. The practical value of this measure lies in the fact that we can predict how accurately the test places pupils with respect to the ability measured. We may state that, on the average, 50 per cent are misplaced by more than three months, 18 per cent by more than six months, and 4 per cent by more than nine months.

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A TIME-SAVING PLAN FOR TEACHING SPELLING

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Careful study and a number of spelling surveys show that in past years much valuable time was wasted in teaching spelling by the old widespread plan of having all the pupils study all the words in each lesson.

The surveys prove that "but few pupils miss many words; many pupils miss a few words." Hence, much time may be saved by determining just which words the pupils do not know, and then drilling on those particular words, instead of studying all words, whether they know them or not. Much time, it is now recognized, may be saved by concentrating on the unknown words in the lesson.

A recent survey in the West Side Junior High School, of Little Rock, Ark., revealed some interesting facts as to spelling. All the pupils of the school, 1,244 in number, were given fifty words to spell (without any opportunity for previous study) which had been used similarly in the County Teachers' Examination. Our results showed that more than 75 per cent of the pupils made a mark above that required in spelling for the teacher's license. They also indicated a steady progress in spelling from the seventh grade through the ninth grade. For example, the word "argument" was missed by ninety 7B pupils, sixty-seven 7A pupils, fifty-nine 8B pupils, fifty-six 8A pupils, fifty-four 9B pupils, and twenty-six 9A pupils; "investigate," by eighty-six 7B pupils, sixty-six 7A pupils, twenty-eight 8B pupils, and nine 9A pupils; and so on through the list. Of the 1,244 pupils taking the test, only fifty-two missed the word "union," which means that had each pupil been required to study the lesson according to the old method, drilling on every word, though only one minute had been given by each to each word, the total loss of time on this word alone would have been 1,192 minutes; therefore, nearly twenty hours were saved by the "Allen Spelling Plan," which we use, since by its operation only fifty-two pupils had to study this word "union."

By the old, conventional plan of teaching spelling in the Little Rock schools, fifteen minutes per day, 1,350 minutes a term of class time, were required; whereas by the new method of only twelve lessons of twenty-five minutes each, 300 minutes are required—thereby saving 1.050 minutes, or seventeen and a half hours a semester of class time.

If an hour in high school is really worth, as has been estimated by Dean Lord, of the School of Business Administration, Boston University, about $3.30, then our junior high school saves per pupil $57.75 worth of valuable time each year by its economical plan of teaching spelling.

The word "insidious"—missed by the greatest number of our pupils, 949—is not in the natural vocabulary of junior high-school children; yet by this new method of teaching spelling there was a saving of 295 minutes (assuming an allowance of only one minute per pupil for studying the word), since that many pupils were found to know its spelling, and, therefore, not to need time to study this.

The plan now used for teaching spelling in the Little Rock schools was worked out by Charles Forrest Allen, now the principal of the West Side Junior High School, and we ordinarily call it by his name. It is as follows:

1. All the pupils are equipped with an *Allen Spelling Tablet*, which has columns for "Attempts," columns for "Missed," and four pages of double columns, at the back of the book, for "Inexcusables."

2. The teacher pronounces and uses in sentences the words from the course of study—twenty-five words at each lesson.

3. Without previous study, the pupils attempt to write correctly, in the column marked "Attempts," the words pronounced.

4. After the words have been written by the pupils, they are corrected. The teacher spells slowly and distinctly the words just pronounced, while the words missed at this first attempt are checked by the pupils. In the upper grades we find that the pupils may profitably exchange tablets, checking each other's work.

5. During their study period, the pupils find in the dictionary the words missed, each one writing his own correctly in the column designated "Missed." We do not use a textbook in spelling.

6. The words missed are then carried to the pages in the back of the spelling tablet, and written there in the columns for "Inexcusables."

7. The pupils then copy their lists of "Inexcusables" in their notebooks, and this list the teacher or a responsible monitor examines to see that all words are spelled correctly.

8. The list of corrected "Inexcusables" is the pupil's assignment for school or home study. When a word has gone on this list, he is allowed a week, if necessary, to master its spelling, after which time he must know this.

9. By this plan the teacher discovers the poor spellers, and corrects

their lists weekly, that they may have weekly home-study spelling. The short lists of the good spellers are corrected less often.

10. "Inexcusables" are often used in sentences as an aid to study.

11. Near the close of the semester the pupils are required to hand to the teacher a complete list of "Inexcusables"—all words missed—with a note from home stating that they *know*, or that they have not learned, how to spell the words.

By this plan pupils are taught to waste no time on words they can spell, but to drill on those they will need but do not know. The testing takes place first, in order that each pupil may know which words he himself need study.

Several suggestions may be incorporated in a closing paragraph. We find that tablets may profitably remain in the possession of the teacher to prevent their being lost. A pupil has a copy of his "Inexcusables." The "Inexcusables" may be used for definite home assignments. We have learned that well-trained monitors can be used, and will save the teacher much time, but that their work must be supervised. The Allen Plan prevents "incidental" spelling from being only *accidentally* taught. It is an ideal way, for instance, we have learned, of handling special lists of words from different school subjects or from other sources.

A CURRICULUM FOR THE WORLD WE LIVE IN

ANNA SHUMAKER[1]

It is the time of the fall plowing in the field of curriculum construction. Everywhere new ground is being broken and old sod turned over by educators anxious to bring the curriculum to something like a satisfactory harvest time. The present article, among many others, is an attempt to sketch some of the outstanding changes in the modern world order with reference to their bearing on contemporary American life, for the purpose of determining their implications for education in terms of the school curriculum.

We are, in general, living in a world much different from the one we are teaching children about. This world we teach of in our common schools is largely the world of a yesterday, the world which prevailed before the results of modern scientific research were applied, with their revolutionizing effects. We, most of us, parcel out in the schoolroom, in sparing and unrelated bits, Medieval philosophies and Victorian outlooks, and evidently expect youth to adjust itself, on these inadequate bases, to a complex modern life. The results obtained are sometimes not dissimilar to those secured by the benevolent English missionaries who, it is said, zealously prepare the sloe-eyed children of China for the "Cambridge locals."

THE OLD ORDER CHANGETH

The changes which have lately come over the world are being recognized and ably pointed out by our best minds and frontier thinkers. Usually about three main aspects of such changes are denoted.

First, a materially extended increase of man's power over, and understanding of, the physical forces of nature is evidenced in the truly stupendous manner in which he is thoroughly subjecting Nature to his wants. By setting the "iron slave" to work, man is freeing himself in a rapidly increasing measure from the tyranny of hard labor for the bare necessities of existence, with the consequent result that there is a broader margin of leisure for all. In America he has swept across a continent and almost overnight "transformed the wilderness into Main Streets."

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[1]Miss Shumaker, a B.S. and M.A. graduate of George Peabody College for Teachers, is an Alabama supervisor of schools. At present she is pursuing advanced courses in Teachers College, Columbia University, and serving as a research assistant in studies pertaining to the curriculum.

The second aspect of change has to do with the relations of peoples to one another. As a result of the growth to young manhood of the monster, Industrialism, and of those twin Mercurys, Transportation and Communication, an increased interdependence in the relations between nations and groups of individuals has been effected. The self-confident, independent, individualistic pioneer, whose cry for "elbow room" once urged him westward until he was checked only by the Pacific, is now learning to live in crowded apartments, where he has to "go out into the hall to change his mind." The world has been more closely knit together. A premature frost in Gopher Prairie, a coal strike in Alabama, a drought in India, a pistol in the hands of a nervous Sarejevan have unlimited capacities for disturbing the equilibrium of the whole planet. The personal, economic, social, and political world order is perilously balanced, like a childish house of cards, on trifles. Economic chaos in one country has its reflex in another. A pebble dropped in some shallow inlet may start ripples that will pile angry waves on the shores of a continent half a world away. Time and space are being abolished. Australia is much nearer New York than San Francisco was seventy-five years ago.

The third aspect of change deals with the conception of "self." Psychology and kindred young sciences are laying irreverent hands on the mysteries of "self." Our notions of our own natures are being so altered that we are beginning to realize how very much more than merely the *feet* of our aspirations are composed of common clay. Science has impudently twitched off our complacent rosy smoked glasses and is proceeding to shave our shaggy eyebrows, dash cold water down our spines, and hand us a microscope, with the slapping adjuration to "have a look." Consequently, we are learning to face ourselves and our issues with braver honesty and greater clarity of vision. We are less prone to rely on sweet but outworn traditions and more anxious to face facts squarely, regardless of the consequences. That which is chiefly an empty form we unregretfully discard. Even classics of literature—even theological dogma—if we are plainly convinced that, though they once served mankind, they are now dead matter, we dare to ignore. If social institutions hamper what is essential in self-realization, we thoughtfully overstep them. Unaccustomed to the light, our eyes make painful blunders—and if we make progress rashly we pay in due coin. But we are, nevertheless, gaining the courage to express in educational concepts our true selves, not make-believe humans, and there are indications that, in our teaching and curricula, we shall shortly come even to letting the child be himself, not an artificial creature devised by adult imagination.

THE WORLD AS IT IS

In the light of these changes, what are some of the more important aspects of contemporary life in America? Speaking in very general terms, two aspects may be noted—the material or economic, and the spiritual or cultural.

The chief characteristics of our economic order are mechanization and industrialization. Their indications may be read in the growing tendency to concentrate population in large centers and immense capital in a few hands; a growing interdependence of physically remote sections upon one another for economic stability; a general diffusion of material prosperity and well-being among the generality of working people, with the consequent freeing of an increasing proportion of labor time for leisure pursuits; the marvelous economy of human effort which reduces labor acts to routine responses to mechanism, with a proportional waste in human spirit by depriving the individual of the artisan's pride in creative workmanship; and an increase in the artificiality of life, resulting from widening the span between the *origins* of things and the *use* made of them. The guide words are Bulk, Scale, Efficiency, Mass, Quantity, Velocity—all of them terms associated with Speed and the Giantesque. And all this has happened with us within the last fifty or sixty years. Never before in the world were the physical conditions of a nation's life so altered by economic means.

But it is the cultural, the spiritual, aspect of contemporary American life with which the greatest fault is being found. In "cultural" we mean to include those forces that are generally associated with the political, social, intellectual, literary, artistic, and ethical ideals which are supposed to motivate the mass of men. They say that, as a whole, we are suffering from a great spiritual poverty, an emotional and esthetic starvation. Inoculated with the virus of success, dedicated to the gospel of "push and shove," absorbed in the feverish ambition for a materialistic "getting on," we seem to have let our souls faint by the spiritual wayside. Now that we *are* "getting there," now that increasing leisure is gradually forcing us to recover from the complacent pride and amazed delight with which we survey our achievements, we turn to scrutinize *ourselves* as we really are, with an uncomfortable astonishment at our inadequacy.

This cultural and spiritual inadequacy may be ascribed to many causes, but two aspects of it are worth noting—namely, our lack of definite conscious individual and national goals, and, second, a tendency toward standardization.

In respect to the first, our unconsciousness of definite goals, we are just living along and thinking about it afterwards, if at all. Democracy, that ideal of which America is supposed to be the exponent, still

remains at the lower end of the scale of trial. Democracy presupposes that the individual members of a society be at least moderately well informed and somewhat actively participant in the broader affairs of that society. What we actually have is a wholesale, lethargic indifference, profound stupidity, and numerous small-minded politicians intent on some form of personal graft. The thinking, intelligent minority cannot, as a rule, be distinctly heard for the bellowing of the misinformed masses.

We have only the faint beginnings of a self-conscious national literature, no art to speak of, and for music—jazz. We waste the tremendous possibilities for creating an entirely new form of graphic art through the movies by depicting inane comedy and cheap sentiment. We have multiplied our voices by millions through the press, the wireless, and the radio—sent our echoes around the world; but we do not *say* anything! The occasional timid philosopher who has arisen thus far has also yelped, "Utility," not to be out of harmony with the chorus. We construct magnificent school buildings, and put our children through the "goose step." Colleges, munificently endowed, are thronged with flippant youth, too many of them intent chiefly upon a "good time." The occasional boor, actuated by honest intellectual curiosity, is sneeringly dismissed as a "bore." So pronounced is the popular antipathy to mental activity, both in school and out, that men devoting their lives to scientific or philosophic endeavor must "lose touch" with the common herd. Professors are considered "absent-minded" and poets and artists "queer." The common run of people have more leisure than ever before, but they are spending it chiefly, as yet, in the childish pleasures of a Coney Island, while their wealthier cousins, not less infantile, constitute the empty aristocracy on the sands of Palm Beach and Atlantic City.

The industrialization of society and the "speeding-up" process have produced a mental strain and tenseness which has come to mark our people as a national characteristic. We have not time or poise for the quieter, reflective aspects of living. We must keep our minds off ourselves. Is it a wonder that we have no "goals?"

Hand in hand with our lack of conscious goals is a seemingly paradoxical tendency toward standardization—especially in its most regrettable form, the standardization of thought. We are a nation of imitators—we move in herds, we do not think for ourselves. We prefer the plays where the house is already "sold out." We stick to outworn traditions and hampering social standards, afraid to strike out for ourselves. We visit the severest social disapproval upon those who dare think differently.

On the other hand, one must be fair. There are thinkers who claim

that *if* these sweeping indictments *are* true of American life, they are less true than they are of any other country, and certainly less true of this age than they have ever been before in the history of civilization. They insist upon an optimistic outlook. If we have no definite national goals, then it is because more people are thinking for themselves; if we flaunt standardization, then it is but the outward evidence of the fact that the general cultural level of the great mass is being simultaneously raised. Democracy, as an ideal, may not be fully realized; but, at least, it is more fully realized in America than elsewhere. We are living along *and* thinking about it, too, say these optimists. More people are reading, more people are writing, more people are going to college than ever before—and the heartening aspect of the situation is that they come from every rank and walk of life.

If capital is oppressive—why, every laborer has the chance to become a capitalist. If we have not created a literature, we have, in truth, put an electric light in the humblest home in the land. But, insist the optimists, we *have* a literature. Look at the volumes of anthologies pouring off the press every year since Whitman "precipitated" us. Look at the magazines we are publishing, and the immense newspapers. We do have an eye for beauty. Look at our distinctive American architecture, at our civic interest in the beautification of our homes and cities. We are not emotionally dead, either. We can feel. Look at our philanthropies and our welfare work.

It is probable that both the charge and the refutation are true. The tide of development is both forward and back, both up and down. It is a healthful sign when, in any civilization, some keen souls can courageously point out the back currents and the down trends.

THE MEANING FOR EDUCATION

At the outset we made the statement that we are living in a world different from the one we are teaching about in school. Having considered a few aspects of contemporary American life, one may ask, "What are the implications for education?" In what ways must we change the present school curriculum in order to make it a preparation for life in the present complex order? Is there a necessity to change at all?

Education and educators are conservative. They represent the established order. New ideas must first prove their claim to usefulness before they are admitted to association with the aristocracy of the classic. Education is an attempt to bring youth into contact with the best that has been thought and said in the world—only, that *best* must not stop too far back. There is a tendency on the part of edu-

cators to omit the best that *is being* thought and said in the world. Knowing this, and in view of the great industrial and social changes which have overtaken us—as one writer puts it, "within the span of life of one cedar post"—it is small wonder that the educative materials on which American youth cuts its eyeteeth have become stale.

If we look upon education as an economical means of preparing youth for participation in society, to prepare American youth for contemporary life, the curriculum materials must be readjusted in at least three respects.

1. The curriculum must be readjusted to include material which will give a sound general understanding of the big concepts which explain our existence—political, social, cultural, and other phases.

2. We must know certainly that the curriculum is providing the situations in which children will learn intelligent and efficient participation.

3. An increasing place must be made for those activities which will train for a wise and joy-producing disposal of the leisure time being accumulated for individuals.

In order to give children and young people a sound general understanding of the forces which dominate contemporary life, we shall have to do away with the present plan of dividing subject matter and knowledge into compartments or "courses." Instead, we shall have to organize the curriculum around a few "dynamic thought centers or themes," which, beginning quite simply early in the child's school life, give at first a broad general outlook and increase in complexity as the child increases in ability to handle details in their right proportions. After these "dynamic themes" have been selected, we shall make an especial effort to present all sides of a question, to consider all aspects of a problem, even if this involves encroaching on "controversial" territory. The development of "open-mindedness" will have a tendency to prevent "standardization" in thinking.

The world order should be presented, not as static, but as evolving. Children should be encouraged to look for the weaknesses as well as the completenesses of institutions, movements, tendencies, lives, and efforts. Issues which promise to be vital in the next generation, as well as the pressing problems of today, should be considered, if children are to be fitted for an evolving society. The curriculum materials should develop "wonderers," not bury curiosity alive. We should not be afraid of children's normal interests as they expand. The fields of religion, race, heredity, sex, the family, and others which have been educational taboos contain key thoughts which interpret life wonderfully.

The curriculum should be organized in terms of the learner, not in

terms of the subject to be learned. Rich, emotionalized content should displace meager generalizations.

The second adjustment will be one of method. Since an important phase of contemporary American life is the democratic ideal of all for the good of all, the school must develop the ability to participate. Some educators insist that this can best be done by letting the child participate in the making of the curriculum by determining through his own interests what he is to learn and when. Others hold out for a scientifically determined curriculum, previously worked out and presented to the child, not as he asks for it, but as the educator thinks he needs it. The line to be drawn somewhere between these two extremes will not be a straight one. Curving freely, it should render educative materials as plastic as the youth they are assembled for. The child who learns to live with others, to lead and to follow, to plan and execute, and to share responsibilities is more likely to be the one who is allowed great freedom for which he is made to feel responsible than is the child who is held in check by authority imposed from without.

The third adjustment in the curriculum will be a shift of emphasis which will allow greater provision to be made for the materials of leisure pursuits—the cultivation of the esthetic sensibilities, of the appreciations, ideals, attitudes, feelings, emotions, and ethical aims of life. Industrialization demands more and more machine workers. There will be less call for the school to train children in how to make a living (which the factory can do perhaps more effectively in a week than the school can in a year), but more demand for training in how to live. The curriculum should contain more cultural materials and only those skills which by test have been proved to be absolutely necessary as the minimum in each successful life. Since the industrial worker is deprived of an important soul-satisfaction—creative artisanship—in his work, he must find it in his play.

What these cultural materials should be in terms of the curriculum has not been determined, but at least they should include the artistic best of the present as well as of the past, and they should be made available for youth to browse about in, rather than be forced upon him as irrefutable. The child's own literary and artistic contributions should be encouraged, and they should be measured, not by adult or classical standards, but by Childhood's divining rod, which is *sincerity*.

The increasing density of population should lead to an increased emphasis upon how to live together. The altruistic emotions and feelings should be cultivated through the curriculum materials. Perhaps sympathy—not enervating pity, but a willing imagination when it

comes to reconstructing the other fellow's problems—should be especially cultivated. Since science has given man almost diabolic power over human life as well as over nature, and since man's instinctive nature has not kept pace with the improvement in the conditions of his environment, it is particularly necessary to develop those kindly impulses which will deter him from destroying himself through the destruction of those within his power. Here is the "tall-and-uncut-timber tract" of educational and social reform.

In conclusion, one thought: Let us avoid timidity in reconstruction. The more violent the changes advocated, the more thrown into relief they are, the more likely they are to excite opposition, hence discussion and eventual change. Educators need, for the time being, to oppose their own conservative souls and be mad—gloriously mad.

EDITORIALS

THE NEW DEAN OF *TEACHERS COLLEGE*

Once again has happened that event so rare in the history of education in the United States—an illustrious father has passed on the administration of a great educational institution to a distinguished son.

The retirement of Dean James E. Russell from the direction of Teachers College, Columbia University, closes an epoch in American teacher training. For thirty years Dean Russell has been a dominant force in the development of American public schools. No leader has contributed more than he to the remarkable expansion of popular education accomplished during this generation. Under his guidance the institution which he has immediately served became *the* teachers college *par excellence*. Probably his name—certainly his Institution—is better known to thoughtful school people throughout the nation than any other connected with teacher training. Now, still in his prime, he relinquishes the heavy burden of the deanship, to continue—we hope and anticipate, for many years—in a professorship of Education. His son, already a distinguished educator, is well fitted to carry on the work of the father, and will doubtless leave a similar impress on American education.

William Fletcher Russell, though only in his thirty-seventh year, has a record of successful experience as teacher, administrator, and author such as is secured by few. He was trained in America, at Cornell and Columbia. His periods of service in various institutions have brought him in contact with the different sections of this country and with many foreign countries. His teaching work began in the West, in the State Teachers College at Greeley, Col. He is well remembered in the South, and will always have our affectionate regard, for several years of service in George Peabody College for Teachers, in which he organized the department of Secondary Education. He was for several years dean of the School of Education in the State University of Iowa, and is well and favorably known in the Middle West. As director of the educational section of the Russian Division of the Committee on Public Information, during the War, and later as associate director of the International Institute of Teachers College, he has had varied contacts with foreign education.

Dean William F. Russell brings to his new responsibility in Teach-

ers College ideal training and hand-picked educational experiences. Back of these, he brings an intelligence of the keenest type, coupled with rare intellectual honesty. A personal charm, present in an unusual degree, has helped to endear him to a host of friends. His choice for the deanship was a fortunate one for the institution over which he will preside. It is not too much to predict that he will bring to Teachers College an administration which will be not less distinguished than the great one just closing. The cause of teacher training will find a fearless champion in the new dean.

STUDENTS' RECORDS

There are in any academic institution two sorts of records—those of finances and those of the academic status of students. Sometimes, but rather rarely, are the official money affairs chaotic; the records regarding students are, however, in the ordinary run of schools and colleges, often pitifully inadequate.

In any great college or university the Committee on Entrance Credits faces, much of the time, students' situations which are not a whit short of tragic. Every self-respecting higher institution, of course, conducts very careful, accurate bookkeeping regarding the precise academic standing of its students. A newcomer, arriving from a high school or transferring from a college, is called on at once to present accurate transcripts of his academic record, above the elementary school, up to that time. Only specific, official certificates will do. Oral statements, informal letters, or even the presentation of a diploma, can, for obvious reasons, at best secure only a temporary respite from the requirement of a complete official transcript. Yet, in spite of this universal requirement of high-grade institutions, many students are unable, through no fault of their own, to establish a right to the academic status which they really deserve.

The penalty is inevitable. What cannot be rightly proved cannot be granted. In spite of hard study, of years spent, and of expense incurred, what cannot be certificated cannot be officially credited. If it were otherwise, the loophole would soon bring higher institutions to great confusion and distress.

The causes of the deficiencies of records are various. There is some slovenly, inaccurate recording of grades and credits earned. More than one school, when called on to duplicate a certificate which had been mislaid, has sent an essentially different statement. Some few high-school principals, it is more than suspected, modify tran-

scripts at will to fit the specific entrance requirements set by various colleges. Occasionally whole sections of the record either are not written at all or are set down almost in scratch-paper form, and soon quite lost. One entire year, for instance, is now missing in the official records of every senior of a certain recent period in the Demonstration School of one of the, in general, best teachers colleges of the South.

There are other reasons—possibly less reprehensible, but, nevertheless, just as heavy in the penalties they inflict. Would it be unjust, everything considered, to have a ward set aside in each State Penitentiary to receive, *en bloc,* for long terms, the school boards, regents, or trustees in irresponsible charge of an institution whose records, without fireproof protection, are *burned?* Why confine "criminal carelessness" to automobilists? Every year there are mature students, successful teachers, whose efforts to earn a B.S., a B.A., or possibly an M.A., are checkmated by a regretful note from a dean or president back on the old campus: "I am sorry to say that, shortly after you graduated, all our records were destroyed. You have your diploma, of course, and your name appears in the catalogue of that date, *but* . . ." And often the pressure of the ever-advancing standards in fine teaching positions makes the whole professional future depend on the attainment of the sought-for degree. Nor does destruction of records result only from fires. During the late war, for instance, a small college in Indiana, practically defunct at the time, hastily turned its entire plant over to the government for war service. House cleaning with military thoroughness did all the rest. Not a fragment of a record remains.

Perhaps the greatest penalties on their alumni and quandam students are inflicted by schools and colleges that go out of existence without depositing their records in some secure place for the service of the students who have confided in them. Many records of institutions of this sort pass into private hands or are otherwise laid away apparently without a thought of their vital importance to those whose academic standing depends on them. In the South alone the number of institutions of this kind is legion.

Is it not a very logical "next step" for the great regional accrediting associations to take—those organizations of secondary schools and colleges which have done, and are doing, so much to advance higher education—to require, in their various regions:

1. That careful, unmistakable academic records of all students be kept—preferably on a standard record form?

2. That sufficient clerical provision for this purpose be consistently maintained?

3. That such records be stored, day and night, except during the actual time of work upon them, in a fireproof vault, and that such a vault, convenient of access, be provided in every institution?

4. That whenever an institution is quiescent or becomes defunct, its records be promptly deposited in the keeping of the State University of that commonwealth?

5. That sufficient equipment, in vault space and in clerical assistance, be strongly urged for each State University so that such records may be safely, accurately, and promptly dealt with whenever an occasion may arise?

6. Possibly, as a final safeguard, that a complete, attested copy of each student's specific record in high school or in college be written on the reverse side of the diploma handed him at Commencement, thus transferring to him a part of the responsibility of preserving it for whatever need may arise?

AFTER TESTING—WHAT?

It is our American way, when we find a good thing, to make it mechanical. Thus we speed up production, and accomplish more in a given time, if mass output be the desideratum.

This matter of standard testing has, in many hands, become exceedingly mechanical. The following note, which has recently passed under our eyes, seems here not inapropos:

Mechanical Aid to Intelligence Testing

A new machine to tabulate and average tests of mental abilities has been designed by Professor Clark L. Hull, of the Psychology Department of the University of Wisconsin. Its purpose is to aid in vocational guidance, especially of adolescents of fourteen to twenty-four years of age, by determining their present aptitude and ability.

The mechanism, called "an automatic correlation computing machine," stands in the university laboratory and is operated by electricity. Half the expense was furnished by the National Research Council, and it was constructed by the university's chief mechanician and a mechanic under Professor Hull's supervision. In describing its operation, the designer said: "I put a series of psychological tests in the machine, the computations of which ran into the hundreds of numbers, pushed the button, and went out to lunch. When I returned, the paper had run

through the machine, compilations running into columns were completed, and the machine had automatically shut itself off."[1]

Of course we are not criticizing the machine, or its inventor. It accomplishes automatically, no doubt, if the report be true, certain purely mechanical operations which have hitherto only bored the experts, although (we are constrained to remark) they have been useful as discipline in schools of education to grind prospective administrators down to a fine polish and instill into students of statistics the proper meekness and respect. The news of the invention, however, is likely, we fear, to overstimulate the market. We anticipate an eager demand from a multitude of teachers colleges, normals, and public-school systems for assorted sizes of so helpful a servant to education and, if obtainable, some patterns of the machine with double action and reduplicated speed, so that testing may go forward rapidly. The word has gone out that "testing" is *the thing*—the more, the better. If a contraption that will run even through lunch periods is available, what a mass of figures we may turn out! Educational statistics, we realize, is only in its infancy. With this wonder-working machine as an encouraging beginning, there will perhaps shortly be an automatic attachment to it devised which students may step on and off as they march by, thus in a trice recording themselves fully without the formality of attendance by the professor upon the process. The achivement of this secondary invention will make it easily possible to "test" on arrival in the morning, at each recess, possibly at every change of classes, and certainly as the trudge homeward begins, so that the achievement of the day may be, at every stage, recorded.

The whole point to our present sage meditations anent this mechanical wonder is that testing is useless and a waste of time unless there are, following it, *interpretations* and, after them, SOMETHING DONE about the conditions revealed. There is still a little place for brains in education.

Reasoning out an answer, somehow, always comes harder than working it out with a simple-minded, unthinking faith in figures alone. We have given the following little problem, for instance, to almost countless college students, and find that over 75 per cent of them give, "with round, unthinking face," the answer that *arithmetic* says is right, although intelligent thoughtfulness, if used (and how seldom it is used!) would show that here, as sometimes elsewhere, figures are liars, even when an honest soul is figuring:

A snail at the bottom of a hole 100 feet deep crawls up 30 feet each day, but slips back 20 feet each night. How many days will it take him to get out?

[1] *School Life*, 10:155 (April, 1925).

Try it yourself, mathematician—intelligent educational statistician! Do it first as a mathematical problem, then test your answer by marking off 100 feet in 10-foot sections along the sidewalk, humbly putting yourself in the snail's place—and learn the truth!

There is a book, *After Testing—What?*[2] that, in its title at least, asks the real question about standard tests. The time for personal hand work and, especially, head work has not yet passed.

[2] *After Testing—What?* By HOBART M. CORNING (Superintendent of Schools, Trinidad, Col.). Chicago: Scott, Foresman & Co., 1926. Pp. x + 213.

CAN SUCCESS BE MEASURED BY FAILURES?

The able study by the Secretary of the "Southern Association" which is published in this issue fills our mind with questions. "What," we have asked ourselves, "*ought* to be done about the conditions revealed?" "And what *will* be done?" From one point of view, some colleges seem to be guilty of that most naughty thing in education—low standards. But from a diametrically opposite point of view, some institutions are guilty of a most shocking waste of educational opportunity. Why not *teach* instead of fail? The high cost of education is partly the cost of waste. Is instruction successful when it discards a large proportion of its students—even half or three-fifths? Is this not by far too great a proportion to be aught but a condemnation? In the light of the needs of the Commonwealth and its citizenship, what, indeed, measures the degree of service of a college—failures or lack of failures?

THE NEW BOOKS ON OUR SHELF

Elementary Manual of Physiology. By RUSSELL BURTON-OPITZ (Columbia University). Philadelphia: W. B. Saunders Co., 1925. Pp. 413. Price, $2.50.

A simple college text for the general information of prospective nurses, dietitians, and high-school science teachers who cannot "go with the doctors" in their specialized courses of physiology. Functions and processes are emphasized more than anatomy. Study of this book will enable a science teacher to present a physiology that is far more than a mere "discourse upon the evil consequences of smoking tobacco and drinking alcoholic beverages," states the preface. If we are any judge, however, these two effects still need emphasis. H. A. W.

Geology in Its Relation to Landscape. By JUNIUS HENDERSON. Boston: Stratford Co. Pp. 362; 94 illustrations, half-tones. Price, $2.50.

This is a popular treatise on geology and the geologic interpretation of landscape, as well as a study of the influence of geology on vegetation, animal life, and civilization. The book is interesting, readable, and well illustrated with half-tones that are perfectly executed. It is scholarly and scientific, and has much literary merit. It shows familiarity with literature, as well as with the scientific work of the geologist. It should commend itself to the general public. A. E. P.

The Psychology of Social Institutions. By CHARLES HUBBARD JUDD (University of Chicago). New York: Macmillan Co., 1926. Pp. ix + 346.

"Social institution," as used in this book, refers to the various "accumulations of social capital which have been produced in the course of community life," such as systems of exchange, number, punctuality, language, means of exact thought, systems of justice, etc. The method used by the author is hardly a scientific one. Various illustrations of conditions among early peoples are given, usually involving long quotations; then follow references to the highly specialized modern developments, with omissions of intermediate stages; then come assertions to the effect that the highly specialized habits are not matters of sensations or percepts or instincts, but are creations of human intelligence. Intelligence is treated largely as a sort of mental force independent of instinctive motivation, although the author does not consistently maintain this position. He especially fails to inquire into the motivation of the experts with leisure who have "thought out" the various inventions and intellectual tools of modern society. It would not be difficult for one with a view like that of McDougall to show from the data presented, with consideration of intermediate steps and practical demands for more and more consistent adjustment, that instinctive drives had indeed been the motivation factors all along. That is, the author's conclusions do not grow out of the facts, but their teachings are announced in the early part of the book as the purpose for which it was written. There are, however, many valuable data collected in the volume; and several of the chapters, like that on the psychology of punctuality, are welcome additions to the literature of social psychology. The author reveals a rather restricted and somewhat antiquated view of "individual psychology," or the psychology which he contrasts with "the psychology of social institutions." J. P.

Why Children Succeed. By STUART A. COURTIS (Detroit Teachers College). Detroit: Courtis Standard Tests, 1925. Pp. 271.

This is a University of Michigan dissertation, being an analysis of the measurements of the classroom products of children, of ages eight to fifteen years, in the third to the eighth grades of Detroit Teachers College. The object was to study the factors conditioning the progress of school children. Success was defined in terms of scores in the Stanford Achievement Tests and in certain handwriting tests, and a large variety of data on the subjects was obtained, including teacher's estimate of capacity and of achievement, physical development, mental and motor abilities, etc. Subjective estimates were found to be so unreliable that only objectively obtained data were usable. The relationships of performance, heredity, maturity, and training are carefully analyzed. When degree of performance and rate are considered, it is found that present measuring scales yet leave much to be desired in the way of predictability and that improvements in prediction are possible if more attention is given to analytical methods rather than merely to massed data. Prediction formula are serviceable in offering new methods of attack in the search for factors that determine success. J. P.

Applied Print-Shop Mathematics. By C. W. HAGUE (The Stout Institute, Menomonie, Wis.). Milwaukee: The Bruce Publishing Co., 1925. Pp. 32. Price, 28 cents.

A valuable little book to guide in the solution of print-shop problems. A useful text. L. L. GORE.

Automotive Repair. By HOMER J. SMITH (University of Minnesota) and ROY S. KERN. Peoria: The Manual Arts Press, 1925. Pp. 123. Price, $1.

A much-needed book of job directions for such work.

Permanent Bird Houses. By GLADSTONE CALIFF. Milwaukee: The Bruce Publishing Co., 1924. Pp. 64. Price, $1.

A book of well-planned bird houses, with necessary information regarding their successful making and placing.

Caleb Heathcote. By DIXON RYAN FOX. New York: Charles Scribner's Sons, 1926. Pp. vii + 301. Price, $3.

An interesting portrayal of a many-sided gentleman colonist in old New York—Caleb Heathcote, merchant, councillor, colonel, judge, lord of a manor, mayor of New York, publicist, and Episcopal enthusiast. The history of New York (1692-1721) unfolds with the narration of the many interests and activities of Heathcote. In documentation the author keeps faith with his readers. This fact, plus the elegance of style, causes this work to approach the ideal in historical writing—a combination of scientific method and literary excellence. The work will be of much value to students of the American Colonial Period. J. B. SANDERS.

Wood Finishing. By HARRY R. JEFFREY (Kansas State Teachers College). Peoria: The Manual Arts Press, 1924. Pp. 175. Price, $1.50.

A complete and practical book for the school shop.

Vertebrate Zoölogy. By HENRY SHERRING PRATT (Haverford College). Boston: Ginn & Co., 1925. Pp. xi + 341. Price, $2.20.

A guide to the dissection of typical vertebrates. Very businesslike in directions. An apparently errorless text, which should stimulate very accurate technique.

Constructive School Discipline. By WALTER ROBINSON SMITH (University of Kansas). Cincinnati: American Book Co., 1924. Pp. 275. Price, $1.40.

A good book of the modern sort, presenting the control of children in school not as repression, but as constructive guidance. Sets forth well the principles now accepted as a substitute for the "beneficent tyranny" long prevalent in the past. Excellent reading for teachers. C. S. P.

Far Away and Long Ago. By W. H. HUDSON. New York: E. P. Dutton & Co., 1925. Pp. xiv + 332. Price, $1.10.

A school edition of one of the most delightful biographies ever written, with a title which is sheer magic. At the price, no school library should now be without it, and many schools can use it as a text. In our judgment, really great literature—and fascinating in what it says. C. S. P.

Elements of Chemistry. By WILLIAM FOSTER (Princeton University). New York: D. Van Nostrand Co., 1925. Pp. xviii + 576. Price, $2.

A college text written in simple, direct language. The book contains more than the usual number of illustrations and descriptions of industrial and agricultural processes. Theoretical portions are clear and well diagrammed. Modern atomic chemistry is given adequate space. H. A. W.

Brief Guide to the Project Method. By JAMES F. HOSIC and SARA E. CHASE. Yonkers, N. Y.: World Book Co., 1924. Pp. x + 243.

The theory and the practice. Helpful to forward-looking teachers.

Expository Writing. By WILLIAM S. DYE, JR. (Pennsylvania State College). Richmond, Va: Johnson Publishing Co., 1926. Pp. ix + 372.

Also loving grandeur, we were so much impressed by the PH.D. stamped on the cover that we almost forgot to look within. It would have been a mistake. The book presents its illustrative material with freshness, not ponderosity, and a helpful analysis of what constitutes, in the various examples, the literary essentials. We think it a good brief text for college freshmen. C. S. P.

Oral and Written English. Upper Book. By MILTON C. POTTER, H. JESCHKE, and HARRY O. GILLET. Boston: Ginn & Co., 1926. Pp. xvi + 510. Price, $0.96.

For the seventh and eighth grades. The last volume of a three-book series. Its predecessors are widely and successfully used; this seems quite as good.

Elements of Astronomy. By EDWARD A. FATH (Carleton College). New York: McGraw-Hill Book Co., Inc., 1926. Pp. viii + 307. Price, $3.

A textbook for college freshmen and all others—the "general readers"—who have at least an equivalent amount of intelligence. The amount of mathematics is very reasonable. The material represents the state of the science of astronomy at the beginning of 1926. The matters that the average person wants to know about the heavenly bodies are given full attention. The illustrations are liberal and excellent. Teachers of physics will find this book particularly useful in furnishing applications of their science.

National Spelling Scale for Senior High Schools. By JOHN J. TIPTON (Assistant Superintendent, Allegany County, Md.). Mountain Lake Park, Md.: National Publishing Co., 1926.

A new scale, to measure ability to spell in sentences. Standardized by age norms, in months, from 14-0 to 19-10. Vocabulary and scaling are from secondary sources—a compilation of modern spelling books and studies regarding difficulty. A scale, in our judgment, well worth trying. C. S. P.

The Music of the Spheres; a Nature Lover's Astronomy. By FLORENCE A. GRONDAL. New York: The Macmillan Co., 1926. Pp. xiii + 334. Price, $5.

Behold, the stars! Bow low as you are introduced to them. Greet those renowned for romance—Andromeda, Cassiopeia, Perseus, Pegasus; for bravery—Leo, Hercules, Orion; stars loved of olden times—the Twins, the Seven Sleepers, the faithful Dog! Stars have thrilled poets as well as mathematicians. In the heavens, "Infinity's illimitable fields, where bloom the worlds like flowers about God's feet," the cold glass eye of the telescope has revealed wonders that should make us moderns gaze in even greater awe than did the ancients. Perhaps we are forgetting to look up. But if within we have a singing soul, we can tune to "The Music of the Spheres." H. A. W.

Investigations in the Teaching of Science. By FRANCIS D. CURTIS (University of Michigan). Philadelphia: P. Blakiston's Son & Co., 1926. Pp. xvii + 341. Price, $2.

From two great lines of research upon the principles of science teaching—those that investigate Learning and those that investigate the Curriculum—Doctor Curtis has selected seventy studies. By a most skillful condensation he has presented the problem, the method, and the findings in a concise form that the authors themselves could probably not have approximated in effectiveness. These valuable studies, in the original, are in widely scattered publications, and many are doubtless out of print. Professor Curtis has herewith "salted down" the meat of the studies up to 1926, and his book—to continue the figure—should furnish well-fed investigators the energy to pursue additional game. H. A. W.

Food Study for High Schools. By MABEL T. WELLMAN. Boston: Little, Brown & Co., 1926. Pp. xix + 528. Price, $1.50.

Food study, to have an intellectual appeal, must include more than mere cooking. Miss Wellman's book is almost broad enough in its treatment to be titled, "The Science of the Kitchen." Utensils are studied with the foods prepared in them. Several new tables are included. The book is—pardon the pun—full of meat for the high-school class.

The Science of Things About Us. By CHARLES E. RUSH and AMY WINSLOW. Boston: Little, Brown & Co., 1926. Pp. xiii + 318. Price, 90 cents.

Nearly a hundred two-page stories of familiar things of the schoolroom and home. The variety is surprising. Of especial interest are the catchy titles. "The Little Wheels That Measure Hours" is more attractive than "Clocks and Watches." Wisely selected illustrations. One of the better science readers. H. A. W.

Introductory College Chemistry. By NEIL E. GORDON (University of Maryland). Yonkers: World Book Co., 1926. Pp. xiv + 688. Price, $3.80.

This *is* a new one! College texts in chemistry have become almost as standardized as Latin grammars, with little new, for many years, in methods of presentation. Dr. Gordon—who, by the way, is the editor of the *Journal of Chemical Education*—has boldly created an entirely different model. All directions for experiments are included as integral parts of the text discussion. The chapters on chemical theory are particularly illuminated by these intimate and practical inclusions. In two large topics—atomic and electron chemistry, and the colloidal state of matter—the experiments, diagrams, and explanations are decidedly clearer and fuller than any predecessors. Unlike most of the others also, this text gives liberal space to drill, practice, and test questions.

The Learner and His Attitude. By GARRY CLEVELAND MYERS (Cleveland School of Education). Chicago: Benj. H. Sanborn & Co., 1925. Pp. xiii + 418.

Realizing the importance of the right attitude in the learner, the author has in this book attempted to set forth in a simple, non-technical manner some of the factors which determine this attitude. The book is intended for parents and social workers, as well as for teachers and Sunday-school teachers. Subjects treated are methods of appeal, learning-morale, punishments and rewards, interests, imagination, emotions, suggestion, health and relaxation, training for leadership, and moral control. Various minor elements in personal attitudes are discussed in a didactic rather than a scientific tone. J. P.

The Psychology of Elementary Education. By A. S. EDWARDS (University of Georgia). Cambridge: Houghton Mifflin Co., 1925. Pp. xvi + 333.

The author presents in a tentative manner the offerings of psychology on the nature of education and its pre-conditions; the learning process in its various aspects, including the directing of learning processes as done by the teacher; and individual differences. These subjects are treated from the standpoint of the practical needs of the teacher in the intermediate grades. While the author rightly admits that the psychology of particular school subjects is yet in the main to be worked out, he offers in his usual clear style a discussion, based on experimental investigations in psychology, which will undoubtedly be valuable to the teachers for whom it is intended. The book is thoughtfully written, and has a higher standard of accuracy than is usual in books of its kind. Questions and exercises, with selected references, follow the several chapters. J. P.

Children's Drawings. STELLA AGNES MCCARTY, editor. Baltimore: Williams & Wilkins Co., 1924. Pp. 164. Price, $3.

This volume represents the results of the collective labors of the Child Study Committee of the International Kindergarten Union for the three years from 1919 to 1922. Drawing is regarded as one of the most universal modes of human expression, and, therefore, as a useful phase of behavior to reveal the spontaneous activity of young children. The study is based on the drawings of 31,239 children of from four to eight years, or of the kindergarten, first, and second grades. Data were obtained from thirty-six representative cities of the nation. The committee defines four fairly well-marked stages in the drawings of these children—the scribble, the symbolic, the schematic, and the truly representative stage. Though it recognizes the need of allowing free expressions of the drawing activity as indicative of interests, it, nevertheless, works out scales for the measurement of drawing efficiency. The study reveals a degree of correlation between drawing ability and general intelligence, though it is "clear that drawing and mental ability are distinct from one another." The weaknesses of the scales are frankly admitted, and it is granted that while they reduce the variations in teachers' judgments of merit, their use still does not eliminate the subjective element entirely. While no appreciable sex difference in general technical skill was revealed by the use of the scales, the boys were found to exceed the girls in representing mechanical objects, while the girls led in the representation of furniture and articles of domestic use, children, plants, nature forms in general, and in design. These young children's drawings revealed as a whole a predominating interest in the human form. However, there is clear evidence of environmental influence in the drawings. The book is of much value both to psychologists and to teachers of young children.

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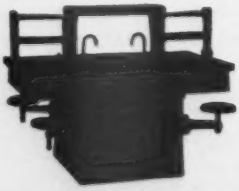

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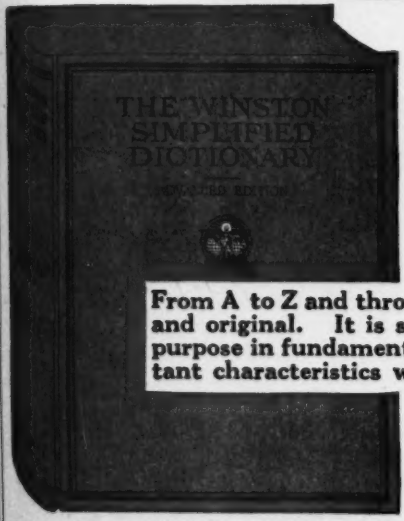

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